

NED LUDD'S DIATRIBES

***WHATEVER THE SOCIAL PROBLEM,
TECHNOLOGY IS NOT THE ANSWER!***



Ellen Jose – Song Journey

Illustration Front Cover

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Ellen JOSE

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PREFACE

Philistines, Anarchists and Luddites have long been considered to be beyond the pale. Recent research has shown that the inhabitants of Philistia – an ancient country on the west coast of the Mediterranean - were much more cultured than the surrounding barbarians that finally overran them.

Anarchism is enjoying a revival as a political ideology and a social movement as a consequence of increasing population growth, finite resources and the domination of the planet by an economic system that demands increasing profits, irrespective of the human, social and environmental costs.

Only the Luddites continue to shiver outside the tent in a society where it is believed that every problem has a technological solution and the path to human happiness is a life burdened by technological innovation.

Ned Ludd's Diatribes – a collection of essays written by Gerry Harant and used as the basis for an ongoing discussion between Gerry Harant and Dr. Joseph Toscano on the '*Anarchist World This Week*' – broadcast from the studios of 3CR in Melbourne across Australia on the National Community Radio Satellite, streaming live on 3CR.org.au and recently podcast, highlights the negative aspects of technology and buries the furphy that technology is value free.

Gerry Harant has, through this collection of essays, rehabilitated the reputation of Luddism and has succeeded in dragging the Luddites out of the cold and putting them back into the ongoing discussion that needs to occur in the community to ensure that technology does not destroy the human spirit and human civilisation.

Dr. Joseph TOSCANO

Convenor Anarchist Media Institute – Melbourne, AUSTRALIA
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DIATRIBE 1 - INTRODUCTION - *The Story Behind This Collection of Essays*

In the late 1980s, I approached Joe Toscano who runs a weekly program *Anarchist World this Week* on Radio 3CR in Melbourne with the idea of contributing, as part of his program, a segment once a month highlighting the negative side of present-day technology. I am grateful to Joe for agreeing to this in the first place as well as participating in our on-air discussions, and for continuing our association to the present day some 12 years later.

What was my motive? As an old leftie, with some 50 years of industrial experience in a variety of employments in a range of industries, I was increasingly concerned with the way in which left groups which managed to get into each others' hair over their perceived ideological differences, showed remarkable unanimity on the matter of technology – it was seen as a Good Thing misapplied in capitalist society. This assumption goes right back to Karl Marx who in one of his rare predictions asserted that the development of the means of production would outrun the mode of production and would sound the death-knell of capitalism. Unfortunately, the internal contradictions of this sort of thinking are with us still, as, on the one hand labour in the abstract is supposed to have dignity, while on the other many ideologues of doctrinaire socialism want to see it abolished. This failure to distinguish between socially useful labour on the one hand and commodified alienated labour on the other is one indication of the failure of the Left to come to grips with the need to propose realistic and inspiring alternatives.

In tackling this neglected area of the Left it was natural to look towards the Luddites as role models. I therefore chose the pseudonym of Ned Ludd to sign my effusions. While initially I only intended to put down keywords for each talk, I soon realised that in order to gather my thoughts I had to formalise details. However, these were not scripts to be read out. They don't resemble what went to air. On Joe's suggestion I have now put them together as a series of essays, as variations of a theme.

Before launching into the nitty-gritty, I feel I should say a word for the real Luddites. Luddites have invariably had a bad press from both right and left, which shows the ideological convergence of traditional party-political groupings. The stereotypical image of the Luddite is that of a mindless machine-smasher swinging a large hammer, just as that of the stereotypical anarchist is that of a jack-booted terrorist in the act of throwing a spherical black bomb with a smoking fuse.

Both these images are caricatures, illustrating the fear of the ruling class of any criticism of the system which goes beyond parliamentary posturing. Far from being mindless, anarchism and Luddism are both based on very real objections to oppressive conditions and have articulate defenders. In the case of the Luddites, these are found in the present rather than in the past. This is hardly surprising given the propensity of the forces of Law and Order in the early 19th century to resort to mass hangings and transportation to Australia for those suspected of Luddite sympathies.

Nevertheless, there was some realism in the official reaction to the early Luddites. They were mainly drawn from the ranks of the textile workers revolting against industrialisation. They had specific reasons for their resistance to certain types of machinery:

The first was the misery inflicted on the workers and their families. Unlike in earlier days when industrial workers still had some connection to the land and could call on rural support, for the textile workers of the early 19th century there was only the choice of wage-slavery for a pittance, or the work-house. These were not just Dickensian conditions; they were the very conditions which motivated Dickens in his social criticisms.

Another reason for Luddite revolt was the feeling of profound injustice engendered by the system. Industrialisation was not just about economic exploitation; it was about the deliberate heightening of alienation, the destruction of human bonds. Unfortunately, perhaps as a result of the way in which Karl Marx never got far beyond economic aspects of capitalism in his three volumes of *Capital* (although there is plenty more in his other works), Capitalism has increasingly come to be seen as a purely economic rather than an all-pervading anti-social system.

Capitalism is one of the expressions of class society, much more so than is current party politics, and it is one of the purposes of these essays to keep stressing this point, perhaps ad nauseam.

The common misunderstanding of the nature of Capitalism as an economic doctrine fits in well with the current pre-occupation with economic rationalist doctrine, even in "left" circles. It is, however, light-years away from the origins of socialism which, despite protestations to the contrary, was largely an ethical movement.

Luddism and Technological Determinism

Neo-luddites are often accused of being technological determinists, in other words in believing that technology decides the nature of society. It was Lenin who believed that "socialism means Soviet power and the electrification of the whole country" and who similarly ascribed, in a mechanistic way, earlier social systems to specific technologies. This was perhaps based on Marx's own prediction that the means of production would outdistance the mode of production in a prophecy which was not only plain wrong but also atypical of old Karl himself.

While it is fairly clear that technology is intimately bound up with the rate of exploitation of labour, it does so largely in enabling bosses to increase the rate of exploitation rather than in some way generating exploitation. Also, technological innovation is often generated by the preparedness of capital to fund it. Social change is

therefore rarely an out come of new technology, rather is new technology initially an outcome of social change and only later comes to be influenced by it.

All this was known to the early nineteenth century Luddites. They were not only concerned with losing their livelihoods to machinery, but with the introduction of unsuitable machines, the wide knitting frames which turned out shoddy goods to be sold cheaply mainly to penniless workers, goods which almost at once fell to pieces. This resistance was far from mindless. It was carefully directed and carried out by highly disciplined activists. Disciplined they had to be, because the state at this time had a propensity for hanging Luddites or transporting them to places like Australia. Indeed, at one stage in the early 19th century, some 12,000 soldiers were mobilised against these rebels, together with the usual bevy of informers and spies. This was a greater number than any that had, before or since, been raised against any other perceived internal enemies.

Early workers had no illusions about what the industrial system was all about – it confronted them daily. It was left to the tycoons in a handful of industrialised countries in the 20th century to realise dimly that by marginally including workers in the consumer society they could foster the myth that by thinly gold-plating the system's chains for some, they had actually changed its nature. Unions, banned in Britain by the Combination Laws, were again allowed to function after 1830. With increasing labour intensity it became clear that excessively long working hours, no matter how desirable from the point of view of bosses' ideology, actually decreased profits. The working day was reduced by legislation. Unions adopted slogans such as "Defence not Defiance". Dreams of a benign capitalism proliferated. Luddites became even more widely demonised.

However seen from an economic point of view, consumerism is a crazy deviation in the system. The mountains of goods that finish up on the scrap-heap represent profits foregone. No wonder there are current moves to rein in workers' incomes back to the subsistence level where, according to the system's ideology, they rightly belong. No wonder means are being found to utilise so-called off-shore manufacture to engage in a race for the bottom, regardless how pointless and unnecessary this may be given the ever-increasing productivity of labour.

The inevitable result of this profligacy in labour and resources is the impossibility of natural resources to keep up with the wastage. A new lot of Luddites takes its cues from environmental degradation. Inevitably, concern for the planet leads to a rejection of unnecessary goods; we hope it will, once again, lead to the elevation of humanity to its rightful place. May the spirit of Ned Ludd prevail!

DIATRIBE 2 - The Myth Of The Robot

By now, robots are no longer considered a distant dream. Most people actually assume that they exist. For some people they represent a dream, for others a nightmare. Reams of fiction and non-fiction have reinforced ideas many of which were untenable in the first place.

What can robots do? This depends, in the first place, on what we mean by a "robot". The concept was floated by Karel Capek in 1921 in a play titled *R.U.R (Rossum's Universal Robots)*, the word Robot being taken from the Czech word for "worker". From there it made its way to mean any self-acting machine, the term in this sense mainly being used in German.

Lots of machines going back to antiquity perform tasks without human intervention. Flour mills are a typical example. They are driven by water or wind and need little attention beyond filling the hopper with grain. Beyond that, human labour was always flexible and could be employed in a myriad ways. One of Rome's emperors when offered some labour saving device asked the man who offered it "What will I give my slaves to do instead?" Of Leonardo da Vinci's endless ideas in his sketches, not one, as far as I can remember, was of some labour-saving device. His machines were all about warfare, about flying or some other pursuit skilled humans weren't able to do. It simply wasn't feasible to incorporate even the simplest skills in a machine in a way which was profitable to the user. Besides, there were generally times of the year when work in the fields wasn't possible.

It was left to the industrial age to invent the "unemployed" worker. Before that, no-one had thought of filling every minute of the waking day with some sort of activity of benefit to the employer or the feudal lord. For what we know from frescos the pyramids were built using pulleys, ropes, chisels and lots and lots of elbow grease. Even though millions of similar blocks had to be hewed and laid, no automatic machinery was employed in these processes.

All this changed with the industrial notion of buying labour power by the hour and selling it at a profit. Labour intensity – the amount of work done in a given time – started to dominate the bosses' thinking. Not only did bosses dream of making workers labour longer and harder, they also dreamt of machines which would perform all or part of the workers tasks, thus doing away with the worker altogether.

Bosses and their stooges had convinced themselves for a long time that most workers' skills were minimal and what they were doing – apart from leaning on their proverbial shovels – could be done by an ox or a machine. Indeed, where the task was a process like spinning, weaving or some other part of a process it could be done by

a machine. By 1850 components like screws and nails were produced automatically in huge quantities, and the machines which enabled this to be done could be set to produce other components. Nearly all the processes in textile production had been automated. To-day, almost every repetitive industrial task is performed automatically by machinery rather than human labour.

There has also been a fantastic development in the area of mechanical tools to assist in producing goods. For instance, a worker with a power-driven sewing machine can outperform a manual seamstress hundreds of times over. And when you compare the output of even a mid 15th century printing press with that of a monk laboriously copying characters to a manuscript, the mind boggles.

So, what's the idea behind the notion of robots? It is to replace human workers on a one-for-one basis. In order to do that the machine would have to be able to think. Present-day attempts at robotics realise that, and the robotics industry nowadays concentrates on so-called artificial intelligence as defining a robot.

Given that we can now assume that machines can carry out any one task as long as you throw sufficient money and time at their design and perhaps adapt the task so that it can be done by a machine, what is so important about a robot? To answer this question, we can look at the actual machines which are currently called "robots". The most typical, and the ones always shown on TV operating in automotive plants, are the spot-welders used in bodywork production. Why single out these rather than the numerous other machines used in making a motor-car and its components?

I must assume that what excites the imagination of those looking for replacement of workers is that the automatic spot welder positioner looks a bit like a human and carries out, to the untrained eye, somewhat similar functions. It has an arm which holds a welding gun; it applies the gun in designated spots and actuates the welding process once in position. To the uninitiated, this looks indeed like a machine having replaced the human operator with no modification of the task in the manner of a robot.

To program such a welder, you put it in the "learning mode" and manually manipulate its gun into the various positions where welds are required. So, clearly, the "robot" needs a human to do this in the first place. But there are other things it cannot do. For instance, the points on a weld gun mushroom at variable rates depending on numerous factors. The human operator can keep a check on the condition of the points and replace them when required. More importantly, variations in metal gauge and hardness mean that the surfaces to be joined sometimes mismatch excessively. The robot - at least the ones I am familiar with - cannot easily decide when the gap is excessive. Human operators are required to make this decision which affects the life of the points as well as the quality of the product - the car body work. Also, there are hazards. The monstrous arm that wields the gun has no soul. As it swings around to get into its next position it will smash your head if it gets in the way. That's why many robots have to be placed in a cage.

The pre-occupation of bosses with the spot welding machines which look a bit human-like has led people, some of whom ought to know better, to think that cars are the products of assembly lines, when in fact they may only spend one hour being assembled. The upholstery trim, which may take far longer to produce, doesn't normally enter into the calculation because so far it can't be made by robots.

So, why do bosses spend so much time on the notion of the robots which do not save a great deal of time or money? It is because class prejudice makes them see their workers as being the expensive part of the production process even when this is far from true. Material and energy savings are often much more important from the cost point of view, but it is always human labour which is seen to be the part of the production process which has to be eliminated at all costs.

I say at all costs because this is what actually happens. While cost-saving is always given as the reason for cutting labour even in vital areas such as maintenance, often such cuts are known to lead to accidents, material waste and disastrous and expensive loss of quality.

It is important to realise that class hatred dominates the production process, as it dominates all of the capitalist system. Unless we understand this, we can never come to grips with the aspects of our society which seem unreasonable and contradictory. To look for some rational explanation for attempts to eliminate human workers from the production process is a dead end endeavour.

In future talks I will look into the reasons why even if robots could be made to work this would be entirely pointless. Meanwhile, let's fight against the notion that humans can be made redundant, a notion which is both untrue and counter-productive.

DIATRIBE 3 - The Robotic Threat

In my previous talk I suggested that present-day robots were incapable of performing all but the simplest tasks normally performed by human workers. Indeed, most of these tasks have already been performed for more than

a century by fully automatic machines. Most textile machinery fits into that category. Not only were all the processes in this industry performed by automatic or semi-automatic machinery, but by the year 1802 Joseph Marie Jacquard had designed a loom which could be programmed by punch cards to produce intricate patterns in the lace which was then fashionable.

He, in turn, based this machinery on the much older musical instruments which played tunes on barrel-organs and musical clocks. All over Europe there are such clocks and artefacts which make it clear that if mechanically clued-up people turned their minds to it, they could design so-called automata. Eisenstein's Film *October* gives us a tour through the St. Petersburg Winter Palace which was chock-full of such toys, presumably gifts to successive Tsars from foreign potentates. Few people seem to have devoted

DIATRIBE 4 - Dumb Robots

In my last talk I mentioned that automatic toys like clocks displaying multiple information relating to movements of planets, or displaying Baroque versions of dancing girls were common in the 17th century, and that the notion of self-acting production machinery became attractive to bosses with the advent of industrial society. Also, that these self-same bosses were desperate to prove that they had special personal attributes other than greed which set them apart from their wage-slaves.

It is this latter conceit which fires the intense pressure on the construction of so-called robots, machines which are claimed to duplicate the actions of human workers. As an example I mentioned the *Sorcerers' Apprentice*, a fable about a lad who wants to create a substitute for himself that fills his master's bath by turning a broom into a suitable robot. Most of the would-be robot inventors who work on such nonsensical monstrosities are quite unable to even define the problem let alone solve it.

Let's look again at the problem the sorcerer's apprentice sets himself. If he had the analytical ability to define the problem, he would start with the most difficult part of the task, that of climbing stairs. Those of you who remember the Daleks, the mythical robots which people early episodes of the BBC/ABC sci-fi serial *Dr Who* will recall that these creatures could endlessly repeat "Destroy" and shoot deadly rays, they could plot mischief, they could carry on a shouted conversation of sorts with each other and with their intended victims, but there was one thing they couldn't do – they couldn't take a single step let alone negotiate a flight of stairs. When you think about it, nearly everything a human does naturally and without a second's hesitation is totally impossible for a machine. It will only become possible if the machine can both think and match some of the senses human beings have naturally. The chances of this happening in the next millennium are zero, unless you include the possible cloning of humans.

The people who put forward the idea of robots know this. That's why the primary effort in robotics is in the area of computers. There is a desperate attempt to see the computer as a model for a brain or vice versa. Just as the managerial mind routinely underestimates the capabilities of workers, so it also denigrates the function of its own brain. The most common application of industrial robots is the so-called "pick and place" robot which generally loads work-pieces into machine tools. Even this simple sounding operation can be trickier than appreciated at first sight. To the untrained, picking a component out of a bin and inserting it in a machine may seem just one operation; when broken down into its separate movements, there may be well over a dozen involving eyes, fingers, arms and brain if the task involves orienting the work piece in a particular way after picking it out of a bin where it is in a random position.

Robot learning is another massive problem. Two researchers Stuart and Hubert Dreyfus, identified five distinct stages in the human learning process. These stages can best be illustrated by learning to play a game like chess or an activity like learning to drive a car.

- Stage 1 is the learning of the rules. In chess this would be the moves allowed to each piece, in driving the rules of the road. At this stage no hands on experience is necessary. It takes no account of the real world.
- Stage 2 describes an advanced beginner, someone who has had some practical experience. In the case of a car driver it means recognising that there are other vehicles on the road that have to be taken account of in applying the rules. Experience becomes immeasurably more important than earlier learning.
- Stage 3 is best described by the term competence. He/she exercises skill with considerable success but still consciously exercises a set of rules. A "competent" chess player still plays the game in an analytical way considering the moves they can see in the light of their memorised rules.
- Stage 4 – Proficiency. Rules now have little relevance. Decisions are made on the background provided by experience. In the case of chess, a proficient player grasps the position on the board without conscious effort and concentrates on where to go from there.

- Stage 5 – Expertise. The skill has become internalised so that the expert is no longer conscious of exercising it. An expert chess player becomes part of the game and no longer sees the individual pieces. What decisions are made, relate to the way the game progresses differently to the plan in the player's mind. The deviation is stored in the player's mind for future games. Grand masters store thousands of positions in their brains. That's why they can play against dozens of moderately proficient ordinary mortals simultaneously and win most of the time. Even if they cannot remember each individual game, most opponents will be playing moves the master has seen numerous times before and which he knows how to counter.

You don't have to agree with the Dreyfus' explanations or their arbitrary breakdown of the skill learning process or its exercise to see that this is not a process a computer is capable of exercising. At best it can get to stage 3, but its program can never become intuitive. Also, the examples given so far are mainly those of mental skills. For instance, there is little manual skill involved in moving chess pieces while there is quite a bit of subconscious mental calculation involved in driving a nail. I would hate to have to enumerate and describe the correlation between hand, eye and brain to drive a nail to hold two randomly placed pieces of wood together. Yet this is precisely the sort of task some of the robotics protagonists have predicted robots will be able to do. It is just a matter of time, they say.

This is utter nonsense. If we want machinery to participate in the building of houses it is a lot simpler to design houses so that they can be built by machines rather than design machines so that they can perform the task of building workers. Nowadays, you can buy factory-built trusses, you can buy ready-made kitchens, you can sit your house on a cement slab instead of a wooden floor and most of your services can be thrown together thanks to plastics. You would, however, be sorely disappointed if you felt that this would save you a mint. Almost from time immemorial the site labour in an Australian house amounted to around 1/3 of the total building costs so the most you could save by replacing site labour by machines is likely to be a few percent. You can probably save more by finding highly skilled trades-people to do the work.

DIATRIBE 5 - The Robotic Threat?

Unions and bosses agree, that, amongst other things, work as we know it is on the way out. They also agree that the introduction of computers is or will be a major factor in the demise of the human worker. For workers, this prospect sends shivers down their spine; it brings a smile to the face of the bosses.

Neither belief is true. Of course, jobs have been disappearing at a great rate ever since the beginning of the industrial revolution. To take a typical example, think of the variety of trades connected with horses. Clearly, the number of displaced workers in the horse and carriage trades was more than made up for in the car industry. And even though computers in industry have displaced workers – no one knows how many – the personal computer industry has employed vastly more.

Of course these are not the same workers. As technology changes there is a corresponding shift in the types of available employment. So much is obvious. Bosses who have a computer at home fervently believe that the type of worker they currently employ will be incapable of handling this new "hi-tech" machinery. This is demonstrably false. It is a fiction to bolster managerial egos. Paradoxically, it is the skills requiring physical dexterity which cannot be learned late in life. You cannot learn to be a ballet dancer, a musician or do sleight-of-hand card tricks late in life. There is little to stop you from learning computer programming at age 50 or 60, although touch-typing is a bit of a problem. I have not met anyone who learnt to drive a 4-inch nail beyond his or her teen-age years.

Many proponents of robotics cannot get these simple facts into their heads. Time and again we find them attempting to automate skills which ignore the multiplicity of senses developed by skilled workers. I say multiplicity because while we have somewhere around five when we are born, each time we develop a new skill we develop, alongside of it, a combination of senses, reactions and brain functions which link our initial gifts to form a new ability which appears instinctive. An experienced car driver not only "instinctively" assesses the speed of his/her vehicle, but is also able to "instinctively" gauge the pedal pressure required to slow down to a stop at a point whose distance they have "instinctively" determined. If the car faces uphill, the driver can "instinctively" adjust for the slope of the road. They can not only do all this, but compensate for other road-users' emotional conditions "instinctively". Some even kid themselves that they can handle a mobile phone call at the same time.

All these listed partial skills are only a tiny fraction of a total skill like shearing a sheep. Yet sheep shearing was one of the earliest robotic tasks attempted by the worker-haters in Australia. From the 1960s onwards numerous projects – I think some five – so far have attempted this impossible feat. Millions of dollars have been spent on this. It is instructive to take a closer look at the amateurish way "robotic" sheep shearing was attempted, at least in the early days of these projects. A principled attempt at tackling a production problem starts with breaking it

down into its component parts and then tackling the most difficult ones first. In shearing I would think the most difficult task would be to select a sheep from the pen and positioning it ready to be shorn. This is not how the would-be inventors of robotic shearing saw it.

Their first attempt was to mechanise the easiest “blow”, down the sheep’s back. At a pinch, I think even I could do that if someone held the sheep in position for me. There is a famous painting by Tom Roberts “Shearing the rams”. This delicate job was generally assigned to the most skilful of shearers, and Roberts’ painting shows the tension on the shearer’s faces as they go about their task. With the animals worth thousands of dollars each and their penis (“pizzle”) and scrotum prominent and floppy, that’s obviously the bit that the machine should be tested on first. I think that it should actually be tested on the designer’s pubic hair, but that is just a malicious if pleasant thought.

Later attempts at robotic shearing were more principled. One started with confining the poor creature into a wooden frame to hold it still. The effort of doing that took almost as long as a shearer takes to get the whole job done, While this attempt was naturally aborted, it certainly demonstrated what went on in the mind of the proponents of the whole scheme. It was not a matter of speeding the process, or performing it better or cheaper. It was about de-skilling and about threatening the notoriously stropky shearers who had shown their industrial muscle for over a century.

In this respect the project succeeded brilliantly. I recently got talking to an old-timer demonstrating shearing at one of Melbourne’s agricultural shows. He was absolutely convinced that with all the money being thrown at the shearing “robot”, it was only a matter of time before it became a reality. I also saw a paper by a professor (I can’t remember of what) who asserted that as the robot shearing of sheep was now an accepted reality, it was time to concentrate on the logistics of transporting the massive infrastructure that would have to be provided to the sites where the shearing was to be done. Very cleverly, this paper appeared not in some scientific publication but in an agricultural magazine where real shearers would read it.

Seen from an economic point of view, such empty threats against workers would seem to be counter-productive. After a time when the threats are not seen to materialise, the result would be a dearth of skilled workers in the affected trades, with a consequent rise in wages. If only! The dearth of skills is palpable and growing; but the propaganda denigrating them is so pervasive that young people can be persuaded to take jobs in fast-food outlets and be persuaded that this constitutes a “career”, whereas, as they are being told constantly, learning a skilled trade is a “dead end” in a situation where all these jobs will supposedly be automated and roboticised out of existence in the near future. This would be true not only of shearing, but of jobs in the building trade, of teaching where every student would have a computer and therefore teachers would be redundant. Even books would not be needed.

These scare tactics have so far worked well. How much truth is in them? As in the past, repetitive tasks will be done by machines, as most are done already. To replace humans by a robot on a one-for-one basis is only possible in rare instances such as the automatic welders in car factories. That’s why every time they want to show a car factory on TV you see a forest of these machines but few human workers. As yet there are no robot brick-layers, plumbers, carpenters or electricians, nor are there likely to be any in the foreseeable future.

DIATRIBE 6 - Artificial Intelligence

The quest to replace human workers with a machine called a robot on a-one-for-one basis which I have so far described as both pointless and impossible is intimately bound up with the quest for artificial intelligence. Artificial intelligence is one of those terms which in the words of one of Lewis Carroll’s characters “means what I want it to mean”. After all, no-one knows what is meant by “intelligence”; for some it might mean ability to survive in a strange environment, for others it might mean an ability to play the stock exchange. The term “Military Intelligence” has been cited as a prime example of an oxymoron, a contradiction in terms.

There is no novelty in machinery programmed to do specific tasks. Up to the 1930s such programming generally took the form of cams defining the timing and path of a cutting tool, punched cards playing a melody on a mechanical instrument, and a variety of mechanisms on mechanical toys or automata. From the 1930s onwards, the means of controlling machines proliferated. In addition to punched cards which go back to the 19th century, there were hydraulics, pneumatics, electrics and finally electronics. Which of these methods were employed depended largely on fashion and the whims of the designers. The concept of forcing a mechanism to perform was largely replaced by feedback devices. Ranging from James Watt’s centrifugal governor which maintained a steam engine at nearly constant speed, to thermostats which maintained rooms and locations at constant temperature, we moved to complex controls which established and maintained numerous parameters at the behest of the human controller.

I am sorry to go into all this tedious detail, but there is an unfortunate belief nowadays that technology began with the introduction of the personal computer. According to the same popular myth, this introduction amounted

to a second industrial revolution, no less. Writers with little or no knowledge of work processes even saw it as “the end of work”. Clearly it referred to work as they knew it but then they had never really known it – if you get my meaning. There was a painful contradiction: On the one hand there seemed to be great difficulties in automating any particular existing skilled occupation they could think of; on the other much of the routine component of their own work – writing – was indeed next in line for abolition with the advent of optical character recognition, which can fairly successfully translate speech into text. Nobody likes to be declared redundant and they certainly didn’t want to declare themselves redundant. With a bit of luck, the prophets of work-abolition will remain silent for a while.

Meanwhile, work as workers used to know it very largely stayed stubbornly in place. Bricklayers still laid bricks, carpenters were still needed to put up house frames, and – drat it – shearers still shear sheep. Programmable machines did invade industries like the automotive industry, but hardly dented the direct labour content of vehicle building as they were mainly used to produce endless variants on the theme of four wheels and an engine, variants which would appal Henry Ford with his “any colour as long as it’s black” concept. Meanwhile an increasing percentage of cars are indeed black.

This is not to say that there were no revolutions in the way goods and services were produced. These were mainly in the area of material changes and improvements. The major revolution was chemical and metallurgical. Metal-cutting tools were changed from carbon steel to high-speed steel and ultimately silicon carbide, with corresponding increases in productivity by a factor of ten. Horses were replaced by tractors of increasing size, and chemical fertilisers and insecticides and weedicides increasingly dominated agriculture. This enabled increasing domination of the soil and the land by brute force methods which may well destroy the earth. This however is another story.

Perhaps the most destructive of all modern technologies is the chain-saw, with its proven ability to lay waste huge tracts of land. Where does this leave the computer, or should I say modern digital electronics? Computers are control devices which, on their own, cannot produce anything. Apart from controlling machines, they dominate communications and data processing. It is questionable whether computers have saved more human effort than they have generated. For instance, in banking and other office applications, a computer can do in a fraction of a second what it takes a human book-keeper, possibly using an old-fashioned adding-machine, several minutes to perform. However, much of this is negated by the extra services banks now offer their clients (now called customers) which only confuse us and the bank staff. Based on the excuse of modernisation, banks now charge like the proverbial wounded bulls for services they used to provide for free. The “paperless office” that was promised to us now looks more like office-less paper as services are centralised and relocated to Iceland if cheaper labour is available there.

Which brings me to the question: Why should the introduction of a machine which – even looked at superficially – causes more problems than it solves, have created such a stir even in communities which make little use of this new technology? Why should people be so undiscerning as to accept the commercial hype so relatively unquestioningly?

There are lots of partial answers to this conundrum. One is that the hype is unremitting. Paradoxically, because the subject is so ephemeral, it seems to excite people’s imagination. Pub talk which once was about football, motor-cars or the races, now often involves computers. Not about how they work, nor about how to program them, but about the relative merits of certain commercially hyped software programs. Incredibly, computer buffs are now prepared to stand in queues to pay a fortune for a new version of some program which gives them little advantage and, being new, may well contain bugs which had been ironed out of their current version. Despite the fact that every computer programming language (there are now lots of them) basically allows you to perform the same operations, there are still arguments about “the best” and denigration of people who use “old-fashioned” ones.

In addition to these esoteric arguments, the introduction of technologies such as cell-phones, mobile phones which break an area up into small sectors has given rise to a new set of industries largely for adolescents. Much of the discussion in these pages will be about the way new and inappropriate technologies are occupying the minds of people in rich countries while the major problems besetting the world’s humans, rich and poor, are languishing for lack of what are generally political solutions. Perhaps we really need artificial intelligence as the real stuff fades from memory.

DIATRIBE 7 - The Motor Car And Its Illusions

There are two skills present-day Western civilisation expects from its citizenry, No, not reading and writing; not elementary numeracy. I am referring to skills in handling money and driving a car. The car especially is said to give you some wonderful benefits: Freedom of movement, cheap travel, even a better sex-life, at least for those who are young and flexible and can perform acrobatics in the back seat.

Let's examine some of the supposed benefits one by one. Firstly there is speed. Whether you can consider cars as fast depends on where you use them. In the urban commuter situation during the peak hour you can almost certainly beat a car on a bicycle, you can only rarely beat even a slow suburban train in open country by racing alongside it in a car even if you are prepared to break the speed limit.

Of course, time is saved by having the car outside your door; much more time is lost by finding a parking spot on arrival. Money is saved on fares; money - a lot of it - goes into buying and maintaining your car.

As for mobility, it comes in two forms. Firstly there is the possibility of finding a job many kilometres from home, and commuting to and fro. I have no idea what the average time spent in this is, but in my experience 2 hours spent in travel to and from work is by no means unusual. Of course, you can spend an equal amount of time in public transport, but with a bit of luck, it will be a much less stressful experience. Also, these enormously long trips are generally the result of cities built around the motor car, but we'll get to that later. The other form of mobility is that of seeing the world. Looking at the lives of 18th century artists and even just tradespeople, we find that they weren't by any means housebound. Indeed, European tradespeople were obliged by their indentures to travel between jobs.

What do we see when we spend a few hours travelling between continents? We see the interior of an aeroplane or of airport lounges, all of which look notoriously identical. Old time travel, whether walking, on horse or by stage-coach or by ship was arduous, but in most cases represented a memorable experience. Admittedly, it was an experience not open to many ordinary people, but then aeroplane and long-distance motor-car travel to-day is only open to those with money in rich countries. I find it almost unbelievable to read about the amount of travelling done by Bach or Mozart who apart from getting around turned out an unbelievable amount of work. Certainly, speed is not an important factor in seeing the world.

But then, motor cars in countries like Australia are not primarily means of getting from A to B. No-one can decide, on the strength of advertisements, whether cars are a means of transport or a form of self-expression. To-day's cars have little individuality and, indeed, they are not even greatly different in function. Only the myths persist. By way of example I remember when I was in the motor-car industry a few of us were at a meeting where one member made a mistake in the venue and rang in. He had to come through 30 km of city traffic and I said it would take him three quarters of an hour. "Oh no" someone said brightly, "not him, he's driving a Jaguar". All of us were engineers, yet even these trained people still believed that in city traffic the make of car could make some difference to trip times. Motoring columns are full of complaints about city speed limits which supposedly affect their city road speeds. Most of these people have been through High School education where a smattering of mechanics was supposed to be on the syllabus. Clearly, when it comes to driving, all sense flies out the window.

The same goes for the inevitable car accidents. The only common factor to road accidents is the motor car. No-one in their right senses would want to use a train running on a single line where there are no signals, no speed limits and traffic goes in both directions. Yet on roads cars are driven at speeds where drivers, even if sober, cannot possibly cope with the unexpected in time to avoid all accidents. Naturally, because accidents are a relatively rare event given the normal traffic density, the rate of accidents varies wildly, especially on weekends where drivers feel entitled to use the car as a form of sport. However, every time there is a statistically inevitable high "road toll" traffic police go berserk with threats against some particular group of road users who they hold responsible when it is quite impossible to have accident free road traffic under present-day conditions.

Motor-cars have been around for well over a century. In this time there hasn't been much fundamental change. Cars still have four wheels and an engine. Much advertised innovation such as hemi-spherical cylinder heads, overhead cams, aluminium cylinder heads and aluminium bodies, automatic gear boxes etc. go back to the 1920s. The Volkswagen which presented numerous innovations in design was the work of my colleague Josef Ganz in 1923. Electronics have made a difference in recent years in minimising pollution and marginally improving fuel economy; but the improvements are marginal. The frequently touted "revolutions" such as the Sarich engine, are often the work of charlatans, who see a pot of gold in a technology which is the biggest seller of engineering products.

The error lies in the philosophy. The concept of private ownership of mass transport is fundamentally flawed. It is clearly understood, for instance, that we cannot all fly our own planes, or that we could fly planes without airport controls. The myths of the motor-car do not arise through lack of knowledge. They arise because of the private ownership of an expensive item which is inherently dangerous. In turn this technology is pushed because it provides enormous financial advantages to the owners of a range of very large industries. It is ultimately about power-trips for drivers and power-trips for financiers.

The upshot is the biggest killer of young people, particularly young men. The motor-car destroys not only the lives of young people, it destroys cities, it destroys the atmosphere, it destroys the environment. It turns drivers into raving lunatics when they feel thwarted in whatever they feel they are entitled to do. Because the motor-car represents the ultimate in individualism, it is one of the ultimate destroyers of a sense of society. It is the excrescence of a social system run amok.

In the event, if the car doesn't kill us first, the life of the private transport concept (other than the bicycle) is limited. As the millions of people who are now joining the consumer society are joining the ranks of the car-mad, cities are disappearing under blankets of pollution, our climate is being affected in unpredictable ways, and ultimately irreplaceable fuel is running out.

People are affected by gross obesity as they no longer even make the previously normal trip to the corner-shop. Enormous cities created by the car paradoxically inhibit the social life of their inhabitants as residential areas get carved up by freeways. It is the ultimate victory of rampant capitalism. Maggie Thatcher's dictum "There is no society" looks like coming horribly true.

As for handling money, the second of my obligatory technological skills, it is even rarer than driving in traffic without causing or being involved in mayhem. But more about that some other time

DIATRIBE 8 - Myths Of High Fidelity

At the turn of the last century, the wax cylinders which Edison had used to record speech were relegated to offices where they were used on Dictaphones, machines which self-important people used to record their important letters for their secretaries to transcribe. Artists who were recording their songs and orchestral playing for sale and for posterity were increasingly being recorded on flat discs made from bakelite or shellac, an early form of artificial resin. While the flat shape lent itself to simple duplication by pressing, the grainy nature of the material meant that the recordings when reproduced sounded scratchy. However, there was no simple way of overcoming this problem. The side-to-side wiggle of the recorded groove had to supply all the energy which the machine turned into sound; so the medium had to be rigid enough to withstand the torture of a needle being dragged along the groove during the playing process.

The general public, instead of rejecting this crude process, embraced it willingly to the tune of spending hundreds of millions of dollars or whatever their local currency was on these scratchy artefacts. Advertising helped - to this day we have the logo of a dog listening to the trumpet of an acoustic gramophone presumably believing, according to the title on the disc, that it heard "His Master's Voice".

Why did people accept this very imperfect illusion? Simply because they had nothing better. Besides, they didn't expect Caruso to turn up in their homes. They were glad to listen to something that reminded them of Caruso. Of course there were means of reproducing which came much closer to the original. The pianist/statesman Ignaz Paderewski recorded piano rolls which when played on his own grand piano sounded just like somebody playing a grand piano. His wife claimed that she got fooled into thinking it was her husband playing in the next room. If you had the moolah to buy a grand piano with a player attachment you too could have a similar experience. It was, however, not necessary. Every now and then, in their own lifetime, most people had the chance of experiencing a real pianist playing a real piano. Actually, singing around the piano was a common experience even for working-class people in industrialised countries, just as they had always stood around an accordion player or a violinist.

Time and marketable technology marches on, however, and if it doesn't there is generally some greedy entrepreneur to give it a push or a kick. So, while it took decades to move from shellac records which rotated at 78 r.p.m. and stored about 5 minutes of recording per side to vinyl "long playing records" spinning at 33 1/3 rpm which had less surface noise and stored about 4 times as much in two major steps, electric recording and electronic reproduction, since then improvements in sound recording have come thick and fast.

Unfortunately, most of these improvements have been in the way of extra income for the corporations flogging the new technologies and the corporations flogging recordings. Artists, now as before, don't get much out of it in the way of financial and moral encouragement unless they are beneficiaries of advertising hype.

When I was working as a broadcast engineer I had regular queries from listeners who wanted to spend their hard-earned cash on reproducing equipment. In those days it was mainly pick-ups, turntables, amplifiers and loudspeakers that attracted their interest. The amounts they spent on this gear - they still do - were out of proportion to whatever "improvements" they could achieve. It is instructive to analyse some of the ideas behind the spending sprees.

The first major change was stereo, which gives you an impression of depth. For true stereo, the sound should be separated as it would arrive at each ear. However, the sort of stereo you get has each ear hearing both sounds unless you listen with earphones. As for other illusions, starting with the dog supposedly fooled by his master's voice, the industry continued to claim that their striving was for "high fidelity" in other words a sound which approximated more and more the initial experience of the listener in the original venue. It is of course nice to be able to hear a recording of a flute that doesn't sound like a violin or vice versa or an orchestra or band which retains the drums which form an essential part of the piece of music you are listening to. It is of course true that early acoustic recordings reproduced none of these sounds to a level of realism where listeners could form an idea of what these instruments sound like if they have never heard them in a live performance.

To-day's reproduction can do this. But this is not what the majority of listeners want. What is wanted is a sound which is larger than life. The people that asked me about what pick-up cartridge to buy so that their disks would sound like what they heard on their FM radios had no idea that what came out of their radios was a highly

doctored version of the record; it had been through equipment variously called a "compeller" or even a "dominator". It had been through a limiter which reduces the range between the softest and the loudest sound because otherwise soft passages would have been lost, particularly when played in noisy cars. There was nothing special about the radio station's pick-up.

That's not all. Records are not generally replicas of live performances. Live music is never perfect. Recording engineers record a performance in bits and pieces of which the least flawed are generally cobbled together for the final disk. This way there aren't many wrong notes, but there isn't much spontaneity either. Rock concert organisers don't in the least mind kids screaming through performances; if there were silence it would become painfully obvious that the performance was not as impressive as the electronically modified records they are flogging. As a natural outcome many discerning people go back to old LPs or record live performances off the air. All studio-recorded music is to a certain extent faked.

A good sound system is one which gives you a sound you like. If you are keen on perfection, learn to play an instrument no matter how imperfectly. But that is where improvements in recorded sound are counterproductive. Each improvement, real or imagined, is another reason why many people who might have gone to the trouble of learning to play an instrument give up before they start because they feel they will not be able to attain the faked perfection of the recorded equivalent. It is all very sad.

DIATRIBE 9 - Technology Vs Content – Why We Have To Have Digital TV & Radio?

Some of you may remember the heady days of the introduction of TV to Australia. People queued up in front of shops to watch the miracle of black and white transmissions through the window. The technical quality was poor; the blacks weren't black and there was often a lot of "snow". Tall and thin actors walked in from the left and exited as tubby and short on the right or vice versa but no-one seemed to care much. It was what was on the screen that impressed people, not how accurately it represented reality. And for those who were concerned about technical aspects of the picture there were small adjustments at the back of the set marked height, width, hor.lin., vert.lin., and so on. If you knew what you were doing, by twiddling these and fiddling a couple of magnets at the back of the picture tube you could often produce a lot of improvement if you wanted to. Surprisingly, few people wanted to.

With the introduction of colour television and transistors, the technical quality of the picture improved a lot but somehow few people noticed this aspect. The manufacturers of sets never stressed it either because actually many of these improvements came from integrated circuits which made manufacture cheaper. To-day you can buy a small colour set in a supermarket for \$100 or less, which, allowing for inflation, is about 1/20 of the 1956 price of a black-and-white receiver.

A lot of these price reductions come from the fact that the guts of the beast are based on digital technology which never needs adjustments. Perhaps it is in order here to put in a few words which explain the use of the notion of "digital", a buzzword in this day and age just like "electronic" was a buzzword a few years ago. Before electronic technology became digital it was "analogue". When you want to measure the length of a piece of wood, you use a ruler which has markings along its length even though the ruler itself is continuous. Your eye and brain breaks every measurement up into whatever divisions of the ruler you want to apply. Once you have a way of applying a tiny ruler over and over again very quickly, you can express the same measurement in multiples of the tiny unit. You will no longer use a tally, a system of 4 strokes crossed out by the fifth, but instead you use a "digital" count which has only noughts and ones. The places in a digital number replace the numerals 1-9 in your analogue numbering system. The advantage in an electronic system of going digital is that every number can be expressed by noughts and ones, which means that these digits can be represented by switches which can only be off or on, representing nought and one. These switches can be made very tiny and cheaply, millions of them with their connecting wires will fit on a silicon chip 6mm square. Because these switches can be switched in a fraction of a millionth of a second they become a very convenient way of measuring and controlling physical quantities. Of course, in real life things rarely happen in a large number of tiny bits, so every count has to be converted into its digital representation. When you play a CD which contains sound that consists of a continuous waveform, these conversions happen at the rate of about 50,000 per second. Much higher conversion rates are common in other applications and each conversion involves numerous steps.

Let's get back to the hype. Sales people would have you believe that this way of representing events and quantities has been thought up because it is better for you, the consumer and user. And because it happens at unimaginable speed, there is also a bit of magic. Actually, it just happens to be the easiest way for us to-day and for all we know it will change to-morrow. While recording of the written word goes back much more than a thousand years, none of our current media have lasted more than ten and all of these digital processing techniques have little to do with what is referred to as digital television.

Once a picture has been generated at the transmitter end, it has to be conveyed to the viewer. Just as there are innumerable ways of “encoding” a picture to turn it into electrical impulses, there is an infinity of ways to get this “signal” to the end user. These methods are called “protocols” and the choice of protocol is hotly contested because, needless to say there is money in whose system is ultimately chosen. The quality of the transmission doesn’t depend on the method of transmission but on how much space is occupied by each station’s signal, a property called bandwidth. Every now and then you hear of some charlatan or nut who claims to be able to send a television picture down an ordinary telephone line. What is more, some greedy idiot will actually believe this and put money into the venture.

Even if his sort of scam is not practical, digital transmission of radio and television is. It allows all sorts of fancy tricks to be used to put extra “information” into the signal. For instance, a CD player (most of us have one nowadays) uses digital techniques to play music or speech. You also get the playing time and track number displayed as a bonus; this extra information is inserted in with the information relating to the two channels in the stereo signal whether you want it or not.

That’s where the rub is, to quote Shakespeare’s Hamlet. Hamlet actually wants the peace of death, but doesn’t fancy the extras of the nasty dreams that might come with it. The extras that come with digital television give you a mass of buttons on a remote control for a set-top box, buttons which are confusing to most users. They relate to channels which don’t as yet exist, text you don’t want to read, games you don’t want to play and menus which you don’t want to consult and which are in any case so tiny that you can’t read them.

If you feel that you are happy with what you have, don’t kid yourself that this will be possible. Having learnt from Bill Gates, the world’s richest man who got where he is by forcing his customers to buy much the same product over and over again, our government has made plans to shut down the existing analogue channels in 2007 and to force you to either throw away perfectly good television receivers or to buy set top converters for at least \$200. At the beginning of 2005 a lot of this is already in place.

As for the advantages of digital television, there are none for the average viewer. The very expense of changing to digital will cost Australians some \$ 30 billion. The extra channels which will come to you free will not carry any extra programs. Pay TV channels will be unaffected. As for digital radio, they haven’t even decided on a standard. Do we really need any extra stations, particularly if they need an entirely new receiver? The advertisers do!

To add insult to injury, not a single piece of technology, transmitters, receivers, or set top converters will be manufactured in Australia. That’s progress for you.

DIATRIBE 10 - The Impact Of Modern Technology On A Specific Industry - Libraries

So far I might have given the impression that all technology introduced recently is purely negative in its impact. Clearly that’s not so. Technology is as old as the human race – indeed to a certain extent it might be said to define the human race. Where technology reduces back-breaking labour or mind-numbing repetitive effort it can be a boon to humanity. Whether or not “labour-saving” technology helps or hinders human development is not immediately obvious and can only be decided after years of usage. This is particularly so since the introduction of the capitalist mode of production which judges usefulness by the amount of profit for the employer.

From way back there have been well-meaning socialists who argued that technology is simply politically neutral; it is the use to which it is put that makes it good or bad. Tell me a good use of land-mines or a purpose of de-skilling a craft other than degrading the worker and I might start believing the “neutrality” claim. The only blanket statement about the usefulness of labour-saving technology that can be made is that no-one knows. Like almost everything else the impact of technology depends on time and place.

Let’s look at a typical example of the upsides and downsides of one modern technology – the Public Library. Our Public Library System sprang from public demand 100 years ago - the same spirit which created the Mechanics' Institutes in which libraries were often located. These institutions were an attempt to allow the working class to self-educate. Books like "The ragged-trousered philanthropist" show a wide level of working class education which leads present-day readers to assume - totally wrongly - that such literature went over workers' heads.

In the 1960s most municipalities in Victoria agitated successfully for their councils to establish municipal libraries which were stocked with a mixture of fiction and non-fiction and were usually staffed by highly trained librarians with a wide range of skills. Libraries are no longer just reading rooms. They run various programmes for children, for students, specialise in particular collections, collect local history and dispense information about council and government programmes.

Thirty years ago it was obvious that technology would have an impact on what was up to that time a highly labour-intensive operation. The impact happened. Index cards were replaced by computer records, books were bar coded, catalogues went on the internet, borrower's records were computerised and photocopying allowed research material to be made more readily available. All these changes were obvious. Not so obvious was the abolition of cataloguing to downloaded info, replacement of reference material by CD-ROMs, and client access to VDUs.

So far, so good! Why should trained librarians occupy themselves with endless paperwork? Why should they spend their time in mindless record-keeping, sorting cards, filling forms to remind overdue borrowers? What's even better' all loans could now be recorded, and reminders sent out automatically. Why, should cataloguing information be laboriously copied for each title in each library when it could all be made available from a centralised source. Why should they physically sort cards alphabetically when my domestic computer sorts entries at the rate of many thousands per second? Why should they equally laboriously assemble catalogues of their media? Why, indeed, should they spend hours on the phone or across the counter to pass on information which clients (now mysteriously called customers) can look up for themselves on a computer terminal? Clearly, the library seems to be one place where the introduction of new technology turns the human from slave to master.

In the best of all possible technological worlds, this appealing scenario might contain seeds of realism. That, however, as our US friends would say, is not how the cookie crumbles. Unfortunately, our libraries are not ultimately administered by the librarians but by bean counters. From their point of view the bonanza of the technologically upgraded library did not lie in the extra services a computerised library could provide, but in the "savings" which could be made.

It is this area that library technological changes really shine. What is more, the fantasies vastly outshine even the reality which is impressive enough. What really impressed the bean counters is the way in which library spending splits 50/50 between spending on staff and spending on resources. Most of the projected savings are on staff; and comes in two colours: sacking and downgrading. Where I live in Victoria, a change of government in the 1990s brought to power a rightwing government which set as its major aim the destruction and privatisation of services, particularly human services. Their "expert consultants" "identified" library savings amounting to some 40% of staff, who were duly sacked. One government henchman could not see why we needed trained librarians who, in his view, were just "checkout chicks". Another complained that he had gone to the library, perhaps for the first time in his life, and saw "people walking out with armfuls of books" without paying. A politician said "a six-year old could get more information off the internet in 5 minutes" than one could get out of the library". In San Francisco the City Librarian disposed of much of his Library's books.

Of course, this technological euphoria didn't last. Our library had to put back on most of the staff that had been sacked; even though the new ones were downskilled, such as by the employment of junior part-time "shelvers". The internet supporting politician changed his mind to complain that the information he wanted was not amongst what he got off the internet. The San Francisco Library had to rebuild its book stocks at massive expense. However the ultimate purpose of the changes was probably achieved: To-day's Public Library is seen by most municipal councils as a liability on their budget rather than as an asset and a source of pride.

However, the greatest expected impact of technology on libraries didn't even start, let alone happen. In the 1960's numerous "experts" confidently predicted the demise of the book itself. Books would be replaced by terminals, their contents downloaded from some central data source and stored at the reader's end. They even invented a name for it – the e-book. This was 40 years ago. Have you seen any e-books lately?

Actually they do exist. When you talk to the "experts" still promoting the notion they will tell you that this failure is all due to the mishandling of the concept by commercial operators. The original idea was that the reading terminal should look like a book and come free of charge, with users merely paying for the content. Over the years at least two e-book readers appeared, but they never took on. I have no idea whether and what titles can be downloaded for these e-books or where you would go to get them.

Let's go back, however, and look at the library functions which can't be performed by technology or can only be performed badly. Amongst the negative aspects, books are hard to find particularly for people with a low level of computer literacy, because the computer catalogue is deficient in cross-referencing. Mainly it is because a librarian familiar with their collection can advise you better than an electronic catalogue which needs you to tell it rather than being able to ask you the odd question. Besides, the librarian can advise on fiction as well as factual texts he or she can even attempt to subtly suggest books to guide your interests in new directions. For my final piece of heresy, what's wrong with clients just coming in for a chat? It costs a lot less than consulting a council social worker. A library is not a shop with no cash register – it is a wonderful social institution.

DIATRIBE 11 - What Price "Efficiency"?

Previously we talked about a specific case of technological impact - the Library. Today I want to look at the big picture - so-called macro economics.

Some gurus claim that there has been a quantum leap in technology largely due to the advent of electronics which has made much human labour redundant. This, they say, makes us more efficient; they also say it causes unemployment. Such ideas fly in the face of people's personal experiences. After all, except for electronic gadgets, the items surrounding you and me, such as houses, food, clothing, furniture and services are demonstrably still produced in traditional ways. Computers themselves now form one of our biggest industries, employing a very large work-force in construction, installation and maintenance, let alone their use.

Current dogma demands that shop-floor labour be eliminated at any price. This has led to a shift towards white collar employment, but not necessarily to a reduction in the overall work-force. The facts about efficiency cannot be determined while all of industry employs the same methods and consequently achieves the same levels of efficiency (or inefficiency). To this dogma-based inefficiency we need to add the current madness, (un)economic (ir)rationalism, in its various manifestations. Privatising parts of Australia Post, for instance, has led to some suburban franchise holders once again wetting thousands of stamps (and delaying the mail in the process) instead of passing envelopes through the franking machine, because they derive higher income from the sale of stamps than from bulk mail.

The user-pays principle has led to the labour-intensive collection of tiny sums in the generation of "cash incomes" for all sorts of public institutions. Replacement of in-house maintenance in public utilities by contractors is vastly less efficient than the old system. The massive amount of "financial control" now being exercised in both the private and public sectors has multiplied the army of accountants and consultants, as well as the need for a vast amount of photo-copying and data generation. The replacement of consultation by confrontation in both government and business has led to an explosion of lawyers and legal action. Each addition to the armoury of managerial control and shop-floor worker replacement can be justified by so-called micro-economics, but the overall effect of excessive and expensive infra-structure generation is disastrous to the economy. So, where have all the manufacturing jobs gone? The answer is that they have gone to countries where manufacture is cheaper, particularly China.

The usual argument is that this is because "labour is cheap" in these places. But if labour could be "replaced" by machines and these machines were not overly expensive to maintain, it would surely be just as realistic to employ such machinery there as it is here, regardless of the price of labour. The "low wages" argument makes no sense. Not only has Australia now the lowest wages in the OECD, but the shop-floor labour cost in manufacture is only 5% - 10% of total production cost. No matter how cheap labour is abroad, a reduction in shop-floor labour could not account for the way in which western markets are now flooded with goods costing what is literally a fraction of local price.

The answer is that it isn't just the shop-floor labour which is cheaper in low-wage countries, because they often use much more of it than we do. It's the overheads which make us uncompetitive, the cost of excessive management and control, in short, the cost of maintaining the ever-growing hierarchies.

This is an ongoing process. Countries like Japan have become equally uncompetitive as they embrace hi-tech to "eliminate labour", and South Korea is going the same way. Cars from these countries now tend to sell for much the same price as do those from places like Germany and France. This is not an argument for turning people into slaves of industry by doing things manually which could be done by machine. The capitalist system already makes a pretty good fist of that. We have to question what "efficiency" means and what it is for. And as far as the production of goods and services is concerned, from first principles to interpose numerous tiers of middle-persons into the chain from producer to user is clearly not a way of generating "efficiency". But then capitalism is not about generating efficiency. In retailing it is about creaming off a large return for the class of "entrepreneur" which infests the supply chain.

This is not just the same old greed which is the basis of the system. As Karl Marx predicted 150 years ago, we are not just looking at the exploitation of the working class, but we are looking at the rapacious use of monopoly practices, we are looking at the use of government agencies for what would normally be regarded as corruption and we are ultimately looking at domestic and international violence and war. To list details of all these would require books and indeed books have been written about them. However, a brief look at some of these areas will remind you of what I am getting at, and what technology has to do with the recent changes.

In food production we see the reduction in traditional crop and livestock production at the expense of quality and for the benefit of chemical companies which dominate the artificial fertiliser pesticide, weedicide and lately the genetically modified seed markets. Not only are beasts raised in conditions degrading to them and their factory farmers, but we are threatened by man-made diseases like BSE and SARS. We are also getting fat and suffering from diabetes due to having replaced quality with quantity.

Our infrastructure and resources – roads, oil, gas, water, electricity, communications, timber, fish and even air are being treated as inexhaustible and wasted as if they were going out of fashion. This ensures that this

becomes a self fulfilling prophecy. All of this is directly connected with technology. For instance, it used to take years to cull a forest; now we can do it in days. What's more we now don't cull it, we eradicate it. We also hand the management of society over to financial conglomerates like Enron or HIH for their corrupt managements to line their pockets. We allow our mass media, the main means of information, to be run by private moguls to spread lies. It is in these areas where we find efficiency of sorts.

Interestingly, the only major protests against these impositions seem to happen in so-called "third world" countries, where people think about survival rather than electronic gimmicks. "Hi-tec Western" civilisation is certainly efficient in befuddling people.

DIATRIBE 12 - The Great Telephone Fraud

In 1876 Alexander Graham Bell, a Boston teacher of speech, invented the telephone, a device which in time was to revolutionise communications across the globe, particularly in and between wealthy countries. The invention related to the conversion of sound into electrical signals, something which was probably done at the same time by numerous other scientists and inventors. Consequently, there were 600 patent suits before Bell's patent was awarded.

Initially owning a telephone was a luxury few could afford. Roads had to be dug up to take cables, exchanges had to be built and staffed, charging systems had to be devised and maintained and the whole apparatus had to be kept running 24 hours a day.

This was not very different from other services like water, sewerage, gas and electricity. In major cities there were others, many now forgotten. There was a mail distribution system using pneumatics, there was a central hydraulic pressure system for operating lifts, indeed reticulating telephone signals was simple compared to those except in one respect: each subscriber had to have access to every other one. Sure enough, automatic exchanges were soon designed although in Australia it took some 50 years before the last manual exchanges disappeared.

Here is one instance where you might say that the automation was totally beneficial. After all, who wants to sit in front of a switchboard all day waiting for a light to come on to tell you to push a plug into a socket to ask the client for their number and then push another plug into a socket representing either the other subscriber or, in larger systems, representing another switchboard. When the call had concluded, you had to go through the reverse process - a boring job indeed. A while ago there was a little BBC TV series giving a fictionalised account of life in some UK urban exchange 50 years ago, which was, I think, pretty true to life. It showed that these situations provided, as any factory worker would know, not only an income but a social background to people's lives.

This was, of course, not a very efficient way to do things. Efficiency demands that workers should be kept with their collective noses to the corporate grindstone, a condition not realised in the telephone industry until the advent of the modern call-centre with its automated tab-keeping on each individual worker and its automatic allotting of incoming calls; the old telephone exchange allotted incoming calls on the basis of which operator's board they happened to appear on.

If the city exchange was inefficient, the country exchange was downright scandalous. Operators handled a mere handful of local lines; they were even able to exchange the time of day with their clients. They even wasted their time ringing certain regulars, who one day didn't follow their routine to enquire about their state of health, often notifying authorities if there was no answer and thereby saving the odd life or two.

Even the technicians had time to spare to participate in the community by training apprentices, fighting the odd bushfire and assisting with emergencies. With the advent of privatisation, needless to say, such shenanigans went by the board.

Being an electrical/electronic discipline, the rate of change of telephone technology was and remains extreme. Instead of thousands of clattering relays and switches the modern exchange contains circuit boards. Unlike in the days of the mechanical switches, technicians rarely repair equipment; they merely change boards. There is a saying amongst telephone technicians that the modern exchange is staffed by a man and a dog. The dog has been trained to stop the man from touching the equipment.

Why did the service deteriorate catastrophically after the organisational changes following on the introduction of intrinsically more reliable electronic technology? Isn't it obvious? Managements saw the change not in terms of better service, but in terms of labour saving. Whereas in the days of step-by-step exchanges if a fault could not be repaired within 24 hours the supervisor had to be informed and a reason given, customers now had to play second fiddle to the need for higher profits. Besides, service in country areas now required long car trips for technicians, so there was obvious advantage to wait for more than one call to come in.

For nearly a century the telephone system was just that. It consisted, with few exceptions, of your hand set, a pair of wires connecting you to the exchange, and exchange itself with its equipment. In recent years we

discovered that the pair of exchange wires could be put to a multitude of uses, so it now carries not only a variety of phone calls simultaneously, but also the internet connection. If you subscribe to broadband (at extra expense) it supports other useful or not so useful functions.

In recent years, in every other sphere of electrical or electronic equipment the new technology has brought price reductions, often at quite unbelievable rates. Telephone technology should have done much the same. For instance, where trunk lines used to carry only one call per pair, modern high frequency carriers can carry dozens or hundreds, and optic fibres an almost unlimited number. The modern exchange can be adapted to perform all the new gimmicks that the commercial wizards can think up to provide extra income for the network operators. Previously such additions required physical components to establish; nowadays a few software program lines are sufficient. These technological possibilities are, however, not reflected in the price of local calls which still are the basis of much of the network providers' income,

They are, however, reflected in the annual accounts of these now largely privatised bodies. And who encouraged this to happen? None other than the "Labor" Party. In the early 1990s under Bob ("proud to call Bondy my mate") Hawke the ALP held a conference to justify the move to privatisation of what was then Telecom. The main argument was that the state-owned Telecom was technologically backward. Actually, Australia had been a test-bed for new technologies for years, but had been deliberately starved of capital funds for many years. Their answer was to let us take out shares in an enterprise which we already owned having paid for it over many years. While new technologies advance by leaps and bounds, none of them advance as fast as the technologies of the outrageous rip-off.

DIATRIBE 13 - Technology Of Movies

Movies are amongst the youngest of the arts. All art is based on technology. The cave paintings in Australia as well as those found in France needed pigments which stood the test of time as well as the skills of the painters who used them. Nowadays we can marvel at the skills that went into the preparation of the materials as well as the art of applying them; we can also wonder at the way in which these skills, until recently, were united in the hands of individual gifted artists.

Later, science discovered that the human eye cannot separate successive images flashed across the field of vision. This allows many colours to be blended to create a white or coloured field. It also allows a moving image to be broken up into successive static ones which can later be combined into a single moving image. All this was incorporated into various toys down the ages.

By printing these successive frames onto a flexible medium, initially celluloid, and projecting its frames in rapid succession, it became possible to project this continuously moving picture on a screen. You could recreate the initial image with its movement and later colour. By putting loudspeakers behind the screen or scattered around the auditorium it was possible to generate auditory effects which could either simulate the original sounds or create entirely new ones. Various ways were devised to synchronise sound and image.

Each one of these steps allowed the cinema to get closer to reality. But is reality really what we want? What we admire in the cave art of Lascaux or the rock art of indigenous Australians is the uncanny ability to give us just enough reality to imagine the original. "Chocolate box art" is despised precisely because of its naturalism, leaving nothing to our imagination.

Clearly, there is a whole range of cinematic approaches for the artists who choose this means of self-expression. While the beginning of cinema was in the fairground and in vaudeville and produced endless versions of *Train arriving at a Station* variants it soon developed into the Photoplay in which the action on a theatrical stage was simply filmed and transferred to the screen. From there, it was just a step to the assumption that what really mattered in film was the personality of the actors. This philosophy led to the film star syndrome which is still in vogue to-day.

Alongside this assumption that cinema was just a poor cousin to what is still called the "legitimate" stage by certain old-timers, there were people who understood that cinema technology opens the door to new art-forms, just as pigments, metal casting techniques and chisels had led to other new art-forms. (You see, even neo-luddites can appreciate certain forms of technology!). From cartoons to nature films, from educational films to instruction, from history to abstraction the list was endless. That's where money comes in.

Like the theatre, but even more so, cinema is not an art which can be practised by the individual. Even if films can be made by individuals, to view them needs a cinema and means of projection. Indeed, even before the film is projected there is a whole apparatus in the manufacture of the stock, the photographic development, the recording of the sound and its matching to the image, all those things you nowadays find listed in the credits at the end. Some of those listed are long dead such as Natalie Kalmus whose name appears in the credits of all films using all or part of the Technicolor process courtesy of her ex-husband and his original contract with the production company. Others are listed because it has become customary to do so. Wherever the reason, these

credits allow you an insight on what it takes to produce a film, particularly a Hollywood film. Even a modest Australian production costs millions of Australian dollars.

You may well argue that these costs are excessive and unnecessary. Indeed, the Waterside Workers' Film Unit in the 1950s consisted of a mere 3 people and turned out documentaries which are screened and respected to this day. In fact, some of the "depression" shots staged for one of the films are used as "authentic newsreel" material to-day. Such economies, however, can only be achieved by film-makers who are prepared to work for a pittance.

Meanwhile, the natural range of film subjects which is being extended all the time, in the case of feature films has become extensively polarised as electronically generated images intrude more and more into film production. There is nothing entirely new about what used to be called trick photography, and in the silent days camera operators used to speed up or slow down the camera as directed. Knife-throwing was practised in reverse with thin lines attached to the daggers jerking them out of the target, the film then being run in reverse. Charlie Chaplin in a memorable sequence, ran back from an axe at his feet, as it was pulled upwards. The film was reversed on projection giving an effect similar to the knife-throwing illusion. As far as I can remember this shot was never used. Charlie could achieve far more through his acrobatic skills, aided by unsurpassed mimicry.

The temptation to use tricks was sometimes used to good effect, such as in Flaherty's *Nanook of the North* where we get introduced to Nanook's Inuit family, all of whom emerge one by one from his one-man canoe, an illusion generated by stop motion to hilarious effect. None of these tricks were expensive to produce; few were meant to be taken seriously. Not so today's special effects. To-day's Blockbuster films which literally cost hundreds of millions of dollars to make and even more millions to publicise often include entire scenes which put Cecil B. de Mille's famous parting of the seas in *Ten Commandments* to shame. I don't know about you, but I find much of this technology unimpressive and artificial, because of necessity it lacks the human touch.

You may well argue however that there is no good reason why the cinema moguls shouldn't spend millions on gimmicks, and why technologists shouldn't think up endless and ever more ridiculously artificial versions of the audio-visual arts, if that is what they can be called. Unfortunately it isn't as simple as that.

It is only rarely that new technologies are an unmitigated blessing to the audience. Adding sound to film gave us the stagy Hollywood image for a decade after the freedom of the camera and the marvels of artistic editing of the 1920s. The insistence on shooting everything in colour has further limited the scope of artistic expression. The wide-screen formats now being inflicted on TV after having been abandoned for decades when Cinemascope failed to excite audiences may offer a good way of showing limitless deserts or perhaps a saga about a family of dachshunds, it is only rarely that this format is suited to dramatic action.

And why is everything being shoehorned into these domestic formats, which incidentally are never used commercially? Because it is all about money. Every time formats change or sound comes from yet more loudspeakers those who have it are presented with yet another way of spending money. Luckily some of the new technologies such as video also allow us to experiment with new options. Let's make use of them!

DIATRIBE 14 - Great Inventions Which Destroy Our Environment: The Flushing Toilet

If asked what invention contributed most to human health and happiness throughout the ages, nowadays the answers would generally include all sorts of irrelevancies ranging from the internal combustion engine to the development of electronics. While currently these sort of gimmicks may contribute most to the financial well-being of corporations, in urban situations there is one which stands out far and wide – the general introduction of sewerage.

Introduction is really the wrong term. Normally, neither humans nor animals like to live surrounded by excrement, particularly their own. The pig-sty is an invention of intensive farming; in their natural state pigs are clean animals. In the wild, animals set an area in their environment aside to unload their wastes rather than wallow in them. If they didn't they would soon be overtaken by disease and presumably die out. There are exceptions to this as for instance sheep and goats but nature has provided that their manure comes pelletised. Humans, too, in their hunter-gatherer state, are generally clean-living creatures.

It is peculiar to inhuman humans to force prisoners and slaves to live "like pigs", in other words like they have forced pigs to live. It is one of the ways you can rob humans of their self-respect. Poor sanitation in crowded situations, as shown in refugee camp disasters, leads to instant disease. But in sustainable communities this hardly ever happens. Organic wastes to natural farmers are a prized commodity used to return to the soil the nutrients removed by farming. There is a story how under Chiang Kai Shek's disastrous rule in China, an American was caught short and went behind a house to relieve himself, using some of the dictators' inflation money as toilet paper for want of anything more suitable. When he passed the same spot a few hours later he had a look to see if the money was gone. The bank-notes were still there, but the shit was gone. In the

same way, horse manure was never a problem in Australian cities during the days when everything was delivered by horse and cart, and nearly every house had a garden of sorts which needed manuring.

In urban situations the disposal of wastes including sewage was a serious problem and had been from time immemorial. The ancient Egyptian and Roman civilisations already had ways of sewage disposal, at least for the rich and powerful. The Roman emperor Vespasian had a palatial one built in Rome in AD 71. It seems that in general these consisted on using flowing streams diverted through the toilet areas to wash the contents into rivers and oceans. In mediaeval castles the latrines dropped their contents into the castle moat, an early form of the much-vaunted present-day trickle-down effect. Reading between the lines, it appears that the castle dungeons were often flooded with sewage as an added incentive to miscreants not to fall foul of the Lord of the manor.

It was left to the now common mixture of extreme poverty and urban overcrowding which led to the horror of the sort of problems which beset cities from the Middle Ages onwards. Open sewers get washed out from time to time by rain, at other times they simply stagnate as they run down shallow trenches past people's houses. Water-borne epidemics are a fact of life; millions of people, particularly children, perish miserably every year. A recent estimate says that currently world-wide a child dies every 15 seconds from unsafe water.

The introduction of urban sewerage in London overnight vastly improved the health of its citizens once the worst of the polluted wells were closed off. However, the 18th century saw the introduction of the water closet, a far more mixed blessing. Whereas cess-pits, manure heaps and other forms of latrines relied on the fact that in time bacterial action will deal with the solids as long as the original contents are not greatly diluted, the flushing toilet does the reverse. It mixes excrement and urine with copious amounts of clean drinking water. In fact, that amount is constant for each flush; even dual flush units waste much more water down the sewer than is required. This causes environmental problems because it wastes two important resources. It uses vast amounts of scarce water, which, in countries like ours, disadvantages country people and affects agriculture, and in times of drought and, nowadays, global warming, threatens our very survival. As it is assumed that large cities have to be supplied with all the water they want, even for manicured lawns and European gardens, it exacerbates an already untenable situation.

Secondly, the flushing toilet treats human wastes as an undesirable nuisance when they are an important resource, used from time immemorial to add to the soil to replenish what we remove from it. Instead, we use energy and chemicals to treat the so-called effluent and dump it in the sea. Indeed, in certain areas where cattle are grown on lush land fertilised with treated human "waste", the law prevents the meat from being sold for human consumption. And when we can't build treatment plants for whatever reasons - money comes first - we dump the untreated sewage in the sea. A typical example is Coffs Harbour where this practice gave rise to a court case against it, but untreated sewage is dumped in the ocean in places all round our Australian coast - even in places close to metropolitan bathing beaches.

There are better ways of dealing with human excrement, but, as I said, many of these cannot work with flushing toilets because of the amount of water mixed into the solids. A good example of the workable ones, are pit toilets. You will find these around National Parks; properly constructed they required virtually no maintenance and are practically odourless. Other methods are known which rely on natural water flow and work with gravity fed pondages rather than pumps and chemicals; a Yarra Valley experiment using these have not been followed up since the outbreak of economic "rationalism" under Kennett in the 1990s.

The twin problems of providing clean drinking water and disposing of sewage is urgent, in fact perhaps the world's most urgent. They are exacerbated by the concentration of populations into huge cities. There are some known solutions. Instead of pioneering some of these and saving money as well as the environment, governments spend money on nuclear research, on casinos and on electronic gimmicks and toys. A recent documentary dealt with the Ganges, a huge river that rises in the Himalayas and for thousands of years has been the lifeblood of the Indian subcontinent. It not only irrigated the fields, it provided the drinking water, it washed people and clothes. It even provided a final resting place for the ashes of entire populations. For various reasons, this is no longer possible.

Today, India sends satellites into space, provides the staffing for Australia's call-centres, writes much of the world's software, builds machine tools, has a nuclear industry and is considered a hi-tech up and coming nation. Yet many of its people are increasingly dying from lack of clean water and sanitation. Another example of how technology fails the world's people.

DIATRIBE 15 - September 7, 1994 - The Myth Of "Natural Selection By Market Forces"

We are told endlessly that, from the consumer's point of view, we live in the best of all possible worlds. Even from this very narrow outlook on what life is all about, the notion that "the market" (i.e. competition) brings out the best solution for supplying services and goods is nonsense. It is doubtful if it was ever true. For it to be true, we

would need discerning and enlightened consumers, as well as ethical vendors, nowadays a contradiction in terms. Certainly in the pre-capitalist European days of small business and urban communities there was far more cohesion in society and one supposes that if tradespeople had to live within a community of equals they had less incentive to cheat and lie. If they did it would soon become known and militate against their business. You may have heard the old poem about the grocer who opened a shop named Alexander which went through several changes until it turned into Alex-sander as he started mixing sand into his sugar.

Today it's almost back to the now over 2000 year old rule of *caveat emptor* (let the buyer beware), in other words let the seller lie and cheat to whatever extent they think they can get away with. Not quite. Given the complexity of many of the purchases in today's markets this simplistic old saw doesn't work, and governments are forced to introduce a measure of regulation into certain transactions.

Of course, the sellers of goods aren't happy about this; not that regulations routinely force sellers to tell the truth about products. But the very idea that ads could be misleading goes against the implication that vendors of goods are their customers' best friends. This illusion is important not only to individual sellers, but more importantly, in a consumer society, to the system which relies on the deceit that goods equate happiness and more goods equal greater happiness.

Let's have a look at some of the items which are outside the ability of purchasers to evaluate their ability let alone their relative value in carrying out the functions for which they are supposedly intended.

The most common is the motor car. It is sold as supposedly the best means of getting from A to B. If A and B are in the bush, there may be some truth in the assumption, given the way Australia's public transport has been neglected over the years. It is certainly not true for city travel, where the pushbike is faster, cheaper, more durable and vastly healthier as long as you are reasonably young and fit and wish to remain that way. But then, who really buys cars primarily to get front A to B? When you look at the ads for cars, or the motoring pages which every newspaper and magazine sprouts in profusion, all trying to convince you, particularly if you are a young male, that not only are you a Formula One racing driver once you buy their car, but that their car is particularly suited to be a Formula One driver in. Predictably, drivers, young males especially, emulate the Formula One driver, killing daily, in the so-called advanced world, hundreds of fellow drivers as well as others occupying road space. Instead of optimising fuel economy, reliability and safety (as far as this can be done in private cars) we are successfully encouraged by the much-vaunted competitive economy to extend the replacement of sea transport and railways by road transport.

This flies in the face of the notion of "efficiency" and "productivity", as the ultimate criterion of society. The publicity machine encourages, even within the private car framework, the most environmentally destructive, dangerous and economically counterproductive solution for the problem of urban transport.

Perhaps the best (or worst?) example of what competition inflicts on us is the personal computer. These machines came out of the initial concepts developed by the genius of people like Alan Turing, who more than any other single person saved the world from German Fascism during WW II by devising means of breaking the German military and naval codes.

What can computers do which would normally done in a real household? Very little, except that what they can do they do at lightning speed. Consequently, the hucksters flogging computers do so, on the basis of their (irrelevant) speed. This enables them to persuade non-expert users to buy a so-called upgrade every other year. Incredibly, these purchasers also are, or at least were until recently, prepared to queue up till midnight on the release date to purchase outrageously priced software with features which are of little or no value to them. How important is it, for instance, whether the character typed on the keyboard takes a few milliseconds longer to appear on the screen? It will still beat the speed of all but the most proficient typist. Besides, the letter is not lost; it just takes a little longer to get there. In short, the current Windows equipped personal computer now combines the worst hardware with the worst software after some 50 years of development.

Clearly, the average punter cannot make the right choices in a sophisticated system which has been devised to cheat. This, however, is only one side of the counterfeited coin. In a system which concentrates capital into a handful of monopolies, the best choice may not be amongst the ones on offer. The patent law goes to elaborate lengths to prevent patentees from keeping inventions out of the market, but what about technology which no patents have been applied for? Understandably, there is a whole raft of ideas which have supposedly kept from the public by devilish inventing corporations. These range from perpetual motion machines to engines using water for fuel, or at least running hundreds of kilometres on a thimble-full of petrol.

Ludicrous as these propositions may appear to anyone with even a minimal understanding of the laws of nature, these superstitions are soundly grounded in, for instance, a chemical industry in which temperature and pressure gauges are calibrated simply from 0-100 without stating units and operators are instructed to keep the pointer or dial in a certain range, as was common in the German chemical industry. In a quite different arena, parliamentary "democracy" is the costliest and least efficient system for putting the world's most unsuitable people in charge of society to misrepresent the population, while transnationals run rampant and make the real decisions.

What is the explanation for all this? Technological and political decisions are made on the basis of power, not sense. Power under capitalism represents the victory of brutal mediocrity over reality and common sense. We live in a world run by what should be classed as the criminally insane. As Brecht said, what we accept as normal is far from natural. Because of the mushroom syndrome, most people have accepted the notion that even though things are crook, they couldn't be any better. We live in a state of schizophrenia. Although we hate politicians and hold them up to ridicule, we are prepared to fight wars for our masters against those who reject the parliamentary circus. Even so-called radicals often looked for a re-arrangement of the deck-chairs rather than fundamental changes, which would need to include a change of attitude towards technology.

DIATRIBE 16 - More About The Future

Recently, we looked at the poverty of outlook of present-day "scientific and technical experts", and the grim future this holds for us if they have their way. By sheer coincidence, a couple of weeks later, the "New Scientist" published a whole issue on the subject of looking into the future - their style - as well as a 30 page supplement both simply called "The Future"; the supplement modestly refers to "The Millennium".

Let's have a quick look at what they put forward as their visions or, from a human point of view, our nightmares. As you might have guessed - and you very likely did - it is largely about computers. There is the usual lengthy article about driving cars by computer.

In the 60s I was asked to design an automatic head-light-dimmer for cars and found it impossible to find a safe solution because of the complexity of the decisions involved. It is still impossible to-day. Why so? If you read the regulations regarding the dipping of headlights, and think about the decisions a driver has to make to comply, it all becomes obvious. Headlights have to be dipped when an oncoming vehicle, be it car or push-bike, comes within 300 metres. They have to be dipped in response to the drivers of oncoming vehicle dipping their headlights. They have to be dipped in built-up areas. They should not be dipped when there are inanimate light sources which just happen to shine in your direction. They should remain dim even when the oncoming car's driver dips their lights in response to your approach. In short, the decisions involved even in something simple such as headlight dimming are complex. If you are a driver, you will no doubt have had many occasions where you were unsure of your judgment and where you made mistakes. And while the sort of analogue electronics which were around when I was first presented with this task has now been superseded by processors which are capable of more sophisticated decision-making capabilities, the seemingly simple problem can still not be safely left to a machine.

Why play with these concepts? Money, as usual, is the answer. Anything you can conceivably hang on Western Man's favourite toy means big bucks, and presumably research funds for the con-men playing around with it. There are other gems in the New Scientist: Instead of going back to a more silent environment, you will wear headphones with noise cancellers; instead of designing bridges that hold up, they will be fitted with sensors that warn of impending disaster; better credit cards will make cash unnecessary (that's another perennial - remember the paperless office?); there is virtual reality, for those who find the "millennium" unbearable. Medical advances are seen mainly in terms of outlandish - and lucrative - procedures carried out on women to allow them to bear children in old age. On top of all that, there is a review of how wrong the predictions of the past turned out to be.

Apart from one article on the family, there is nothing about human beings or how they will be expected to live. The article makes clear that, as always, humans will just have to fit in with the technology. There is nothing about survival, elimination of hunger, disease and poverty, or, for that matter, about new ways for self-expression, now that we have lost so many of the old ones. It is all wall-to-wall consumerism. It seems appalling that, in outlook, a scientific journal should offer nothing better than the advertising supplement of a glossy yuppie magazine. But there is a vital difference between the dodgy predictions of the past, and the dodgy predictions made now. Last century, everything appeared possible; with a population peaking at least at 10 billion people around the globe, and depleting resources of food, water and air, it is easy to see what choices there are:

We can continue along the present track, with horrendous increases in the gap between rich and poor within countries and from one country to the next. Even if you are amongst the rich in the rich countries, you won't be able to get away from the horrendous results of such a drift; they are seen by the recurrence of common diseases like TB in the "rich" US. If we don't want to go that way, we have to accept that:

- We won't be able to continue working 40 hours or more per week for money; the resources simply aren't there.
- The elites won't be able to spend major resources on playing rather than providing survival - by playing I mean all the activities of the money industry, the endless travel in foreign lands, the turning over of people's land to golf courses and to spectator sports, the drift towards hundreds of television channels all showing similar programs and so on.
- We won't be able to waste our lives on destructive relationships circumscribed by present-day popular media;

- We won't be able to live fragmented existences where the young, the "productively aged" and the "useless old" are isolated for individual exploitation by rampant capitalism.
- We won't be able to destroy ourselves and our planet by endless competition around things which, in the long run, don't matter.
- Above all, we will longer be involved in ever more cruel wars for resources but instead co-operate in sharing in what there is and creating what there is not.
- Our laws will no longer concentrate on stopping others from doing what someone else feels is unorthodox in the way of dress and behaviour, but instead help us to achieve maximum diversity.
- Our technology will not be developed to maximise the self-aggrandisement of individuals.

There is very little that is novel in these points which I have chosen at random; philosophers have raised them for millennia. The only thing is perhaps that technology now looms large in our philosophy, and that we have entire industries to promote the unnatural.

I, for one, am not upset by the notion of having no smoggy and noisy Central Business District, no rows of pokies; skies not filled with tens of thousands of Jumbo Jets needed to transport elites on their endless round-the-world joy flights. In particular, I am not horrified by thoughts of having my weekly stint of alienated labour reduced to 10 hours, or having 5 or 6 days a week free to exert myself for those around me; I am not upset by thought of having my friends, instead of consuming endless TV fare, meeting together for performing plays, music, or indeed having orgies from time to time if that is what they want, as long as they are not orgies of destruction of human or environmental values..

I look forward to meeting people from other lands as friends and equals, to respect their cultures and not to treat them as quaint curiosities or objects of sexual or financial exploitation. As a non-consumer and non-owner of property; I should hope for a society with an outlook exactly opposite of that peddled by the sterile so-called scientists which I mentioned at the beginning. I fancy you feel much the same.

DIATRIBE 17 - Predicting A Future For Humanity

Last month I gave examples of how technologists in recent times consistently got their projections of the future wrong because they were nothing but wishful thinking fostered by the cash-registers in their minds. Now a new book has been published in France written 130 years ago by Jules Verne known for his often whimsical technological projections which nevertheless proved highly prophetic (and made it into film scripts such as *80 days around the World*) But then, Jules was a novelist, not a technologists.

Before I talk about this "new" book, let's look at the two most famous projections of the future in novels, "Brave New World" by Aldous Huxley and "1984" by George Orwell. Huxley's book written in the 20's talks about a world of consumerism where hedonism and human non-involvement are cynically imposed from above by a handful of super-elitists who understand very well what they are doing and who claim to be doing it for political stability. 1984 written in 1948 describes a shabby world of total repression, surveillance, and the manufacture of a pseudo-reality backed up by pseudo history and enforced through total media control and loud-speakers in the streets. On the face of it, the projections are diametrically opposite, but in fact they merely show two faces of centralised technological societies of the present. Both deal with societies based on enforced political stability, which is still the dream of every secret agency in the world, quite apart from churches and mass political parties which cannot operate under conditions of real change.

The Brave New World existed in the '60s in a handful of rich countries at relatively prosperous times; it was a projection of what the ideology of the rich would look like if spread over a large part of the population. 1984 is the reality for the majority of people living under capitalism, who live in a rich world in abject poverty, and are dealt with by murder, disappearance, and starvation if they are seen to be criticising these conditions.

Jules Verne's recently discovered book, called *Paris in 1960*, is a best-seller in France 130 years after it was rejected by Verne's publisher for being too gloomy and bizarre. It shows, according to a review in New Scientist, a world in which capitalism is running amok, where there is no room for the arts, where everyone is literate but doesn't read, universities with over a hundred thousand students are devoted exclusively to training people for business rather than broadening their minds, and people busy rushing after the "demon of fortune" are even - about the worst thing in the eyes of a humanist Frenchman of the last century - bolting down fast food.

The question for us is: How is it that technologists invariably get it wrong when they forecast the future, while novelists tend to get it right, even down to the technology? In 1860 Verne forecast cars, faxes and even TV soaps with phoney recorded audiences, the metro and train systems, and privately run universities. He also forecast a society obsessed with efficiency, computerised stock exchange gambles and the cutting down of the world's forests for heating and paper.

As well he describes warfare by "cowardly" soldiers murdering opponents by long-distance technology. Huxley described the development of reproductive technology, ever more gimmicky cinema, and institutionalised birth and death; Orwell gets it right on universal closed circuit television surveillance and customised torture. By re-reading these books regularly, you get a feeling that we are involved in inevitable processes; that, like the central characters in these books, we are at the mercy of relentless forces of history, which make human beings feel outdated and superfluous. The answer to the question as to why these novelists got things right is that they saw the world from the point of view of romantics driven by human impulses, not as pragmatists or "post-modernists" accepting existing conditions as given. In their various ways, they could be described as revolutionary conservatives.

In previous periods of history oppressed people sooner or later revolted against authority and overthrew existing tyrants and overlords. Such feelings are now very rare indeed; they are generally limited to places where discernible individual dictators embody the evils of society. Universal acceptance of capitalist technology which has made the machine its only God, allows the ruling class to get away with murder, because oppression always seems to arise from outside the prevailing system. We say "times are bad" when in fact it is the system which is rotten; we accept that essential services can't be performed because "there is no money" while more supermarkets are going up, more arms are being made, and the rich are drowning in obscene luxury. In the '80s people were even conned into believing that the Bonds and Skases were "good for Australia"; to this day people believe that the billions mining monopolies rip out of the ground somehow benefit ordinary people personally.

Worst of all, people are now convinced that the adverse changes inflicted on them are due to technological change and therefore inevitable. Technology is used as a protective wall around the ruling class which very effectively shields them from the people's anger. Media and the education system, in thousands of different aspects of the same ideology, use George Orwell's NewSpeak language to complete people's alienation from reality.

Luckily, every now and then we get a whiff of reality. No-one can believe that bastardry like Kennett's is inevitable and so in his day we had a personal target for anger. But even this is counter-productive, because behind each individual bastard stand hundreds ready to take his place.

For people on the left it is time to stop thinking that there are technological or organisational fixes for our system. Indeed, by trying to "fix" the system we only lend it further legitimacy. Until we realise that the system itself in all its aspects is our enemy as much as were the personal oppressors of old, the dire predictions of Aldous Huxley and George Orwell will continue to come horribly true. Jules Verne's largely technologically optimistic forecasts in his dozens of novels, on the other hand, will only live on in the many films they have spawned; and, if they are remembered at all, will remain quaint curios of a bygone time.

DIATRIBE 18 - Rampant Stupidity Under Capitalist Managements

Most people on the Left see capitalism as a very efficient way of exploiting the people. While it can be that, because of the way it is now managed it often results in great waste with costs invariably footed by you and me. Instead of talking in general, let's look at a specific case. Some of our listeners/readers might have seen how, a few years ago, one of the loss items on the South Australian budget was a project referred to as "Scrimber". If I remember rightly, the loss was about 50 million dollars. Having worked on this project, even if only at the periphery, I can talk about it in some detail; it is a classic example of capitalist waste.

What is Scrimber? It is one of the many forms of modified timber, along with chip-board, plywood and other products where wood and glue combine to make a composite for some special use. Some of these are very useful, others, such as standard density chip-board, are abominable substitutes for the real thing. Scrimber was neither. It was an invention, if that's the word, by a CSIRO scientist in the '70s. He had the bright idea to crush green pine saplings in about two metre lengths to make a "scrim" which could then be laid up into long lengths and big cross-sections to be compressed and glued into heavy beams or cut up for other uses. The fibrous nature of the product would produce a very strong material.

Those of us who worked on the project at Repco Research had misgivings right from the beginning. Firstly, we couldn't see how odd lengths of a material behaving like bits of twisted barbed wire could be neatly laid up into reasonably even bundles and also we couldn't imagine where the market for the stuff would be found, particularly as the final product was many times as expensive as its timber equivalent. The first objection could be easily met, by shredding the stuff into thin fibres 15 to 20 cm long; but the problem of the market was still there. In short, our technical staff was convinced the program should be abandoned. But that's not how the system works. The political reality was that although much of Repco's manufacturing profits had come from developments at Repco Research, this was not understood by Repco financial management. They were hell-bent to hire our services out to create a visible cash-flow. Our manager was a spineless creature prepared to jeopardise our professional integrity and follow a "three bags full" course. So we were committed to embark on a project which we felt no-one needed and which couldn't be made. It was one of my jobs to study previous patents to see if the idea was novel. Of course it wasn't novel to shred timber and to reconstitute it with glue. It

was only novel to leave it in relatively long length, obviously because this had nothing but disadvantages. My suggestion to contact the German company who had taken out a short-fibre patent many years before and to find out why they hadn't got to a commercial stage was not even considered; instead, the CSIRO patent was based on long lengths and this, in turn, locked us into a hopeless project.

If there were any sense in industry, this project would have been abandoned once the problems had become apparent to those connected with it. This did not happen. After building experimental machines, we proved that short beams could be made. Indeed, if you come to Camp Eureka you will there find one of them forming the mantel-piece over the huge open fire-place in our recreation hut - to my knowledge the only practical application ever of Scrimber. At this point, Repco-CSIRO got a private development partner; I think it was CSR or APPM. They established a pilot plant at a 7-figure cost; this employed the latest technology, using dielectric curing of the glue and a very special press. The two main problems remained. Despite this, the project was moved into a production phase in which the SA government became a major partner. A production plant was built, but the engineer hired to administer it - poor devil - couldn't get it going. Ultimately they recalled one of the original technicians, but he, too, couldn't achieve the impossible, so finally they admitted defeat after 10 years in a project that should never have been attempted. A number of causes combined in this debacle. A CSIRO scientist who was pushed into pursuing a nonsense by a department head who wanted to go along with government edicts on having "commercial" scientists on his staff; a Repco departmental manager who played the same game; employees who should have been allowed to refuse to work on what they knew was a dead duck; and finally ignorant public servants going after kudos.

I am only detailing this particular bit of incompetence because I had personal experience of it. Other than that, it is the rule rather than the exception in commercial developments. This is despite the numerous books on the subject, which abound in tertiary courses on business management. Every so often we read of yet another instance where some organisation or other is in deep strife because they have commissioned yet another computer program and taken it into service prematurely. Almost invariably these pieces of software replace others which have been around more or less successfully for years and which could easily be upgraded if really necessary. In a self-managed environment every one of these mistakes are far more likely to be avoided. Technology would only be developed in response to a well-defined need. If there is a problem, it would need to be analysed before proposing solutions. These solutions would have to be considered in their impact on society. And if it sounds as if nothing would ever happen if such safeguards were in place, it is only because of the way we are dominated by commercial thinking. On the village and local level new ideas are constantly implemented; many of them use less materials and less energy and are of direct benefits to the user. It is called appropriate technology and it has worked for thousands of years.

DIATRIBE 19 - Why Capitalism Is So Environmentally Destructive

All previous class systems allowed the ruling class to benefit directly from the exploitation of their underlings. This was true of slavery, where the slaves toiled for the owner in his gardens, built his edifices, rowed his galleys, cultivated his fields, looked after his kids and even, like the Greek slaves in Rome, educated the offspring of wealthy patricians.

It was true in feudal times, when in much the same way the serfs maintained the feudal lord; except that this new form was more efficient and allowed the lord to own villages he sometimes never even visited, but whose serfs had to pay tribute and till the lord's fields and to pay monetary tribute, even though there were few ways of earning cash. If you want to get a feel for how this worked, you couldn't do better than read Turgenev or Tolstoy who described the condition of Russia's serfs.

Slavery and feudalism were, in their way, efficient. Whatever could be ripped off slaves or serfs went directly to the master. Even if the masters spent much of their ill-gotten gain on riotous living, war or conspicuous consumption, the impact on the land was largely that of the consumption by the community and the deserts which brought an end to ancient civilisation were caused by ignorance which depleted the soil, rather than by the consumption of the rich.

Capitalism is different. When you think of it, it is a crazy system. Instead of the capitalist getting the direct benefit of your labour, he has to work through a thing called the market. It works like this: There are people who can work to provide goods and services, and there are people who need these goods and services (often they are the same people). The boss erects a wall between the maker and the user, and makes us pay for dragging the goods across this wall. If no-one wants the goods, they go to waste. But whatever happens, the boss only gets a small percentage of the labour he exploits, instead of the lot as in the past. This is called the Profit. If he wants more profit, he has to produce more and sell more; or he has to increase his percentage cut. No conservative economist worth their degree cares two hoots how this consumption is used. This new phase of capitalism is called consumerism and it means that the earth is being destroyed by resources wasted so that the bosses get their cut.

The last recent period has seen things go from bad to worse. Up till about two decades ago, some 90 % of trade transactions in "advanced" countries dealt with real goods and services, and 10% were about money. Today, 90% are money transactions and only 10% deal with real things. As a result, production has declined some 25%. But resources use has shot up, not to increase living standards, but to reinforce the machine which exploits us. Forests are disappearing to produce advertisements on the back of which appears a tiny amount of useful writing.

The greater part of our central business district produces nothing but consumes huge amounts of energy for air conditioning, pollutes the air with exhaust gases from vehicles which carry people who have no useful function. Much of the rest of our production goes on war, or on unproductive money spinners like TV. Ask yourself how many people you know who do a job which is really essential to the community. This goes hand-in-hand with a totally new outlook on classical economics. Whereas in the past we were taught that a successful economy could be built on a "steady-state" model, now it is all about "growth". This is a very peculiar form of growth. It is all about consuming more, a thing called gross domestic product or GDP. If you turn valuable goods into landfill, it adds to GDP. If you have an accident and have to go to hospital, the cost of that is part of the GDP.

However, if your income increases, this is not considered growth until you spend the extra on whatever your fancy at the time. The more you spend, the more the GDP "improves". On the other hand, the work done by people for their own and their environment's subsistence, the work largely done by women, the work done by unpaid artists to make life enjoyable, the work done by innumerable gardeners, in short the effort which defines our culture is not, in this financially dominated model, of any value whatever. If anything, it is considered a drain on the economy.

This model has curious side-effects. If growth is the yardstick, it follows that resource consumption has to go up year after year because hardly any economic return can result unless there is a measure of resource input. On the other hand, we know that the earth's resources are not inexhaustible. It is obvious that these two parameters, rising consumption and diminishing resources, are a certain recipe for global disaster. This is in addition to sundry human-caused catastrophes such as global warming, as well as others which we have as yet no knowledge of. The ultimate horror of this situation lies in the fact that all this is now accepted by many, if not most people as natural, acceptable or even as positive. We make wars on people who don't go along with our lifestyle.

Today, the earth is being destroyed not to feed and house its increasing number of people, but to support an insane system which destroys the planet as well as us. As a final insult this cult is referred to as "economic rationalism" when it is neither economic nor rational.

DIATRIBE 20 - With A Guard At Every Door

Amongst the most wasteful practices of capitalism is the guarding of property. Not so long ago, people left their houses open, partly because there was little to steal, partly because neighbours knew each other and strangers were instantly detected, and finally because there were few thieves. As cities grew with the influx of the surplus population, and poverty became extreme, things changed. The rich became paranoid and their justice system hanged people for minor offences against property. Thousands were transported to Australia for what was called grand larceny. It wasn't grand at all; anything in excess of a shilling, about \$10 in today's money.

Today, protecting property is big business. In fact, if you believe that the military is for defence, property protection is the world's biggest business. Not only do we have locks and keys of great complexity, but we have burglar alarms, closed circuit television in stores spying on customers, even in change-rooms. It is ironic that about the only thing that creates a suburban street community, if it can be called that, is Neighbourhood Watch.

The guarding of intellectual property, patent and copyright protection, borders on the bizarre. Whereas once the patent system was meant to transfer novelty to the public after the patents had expired, it is now a brake on developments because, instead of communicating, innovators go in for extreme secrecy to let them get to the patent office first. This creates two types of waste: parallel developments where several companies work on the same project, and abandonment of useful projects in the belief that someone else is already there. This is helped along by phoney releases to technical media.

Bosses spend sleepless nights over the possibility of hackers getting into their records. In the 1970s when I worked for Repco, there were 7 separate mainframe computers in as many associated companies, because company managers felt that if they had one common one, head office could look into their records, which incidentally wasn't true. Today, some offices have complex procedures to conceal faxes and e-mails from prying eyes. There is now a whole industry dealing with encryption, the business of making communications inaccessible to third parties. A major upset was caused when the designer of the most commonly used encryption formula put it on the internet for all to use. On the other end of the scale, the CIA stopped certain

digital phones from being put into operation because they couldn't tap them. Spying on industrial secrets is now a much bigger business than industrial research. Mind you, the bosses have something going for them when they each feel that their own employees aren't very bright; they ask themselves, if these people were really bright, why would they work for me?

On the extreme end of the stealing spectrum, you have the world's most sophisticated satellites sucking the ether dry for commercial information; some time ago there was a massive blue on between the French and the US over just such allegations. And while artists in the West are struggling for a crust, and software writers aren't doing that well either, their bosses are fighting massive wars over the right to exploit the public by charging exorbitantly for music recordings and software, as we currently see between China and the US. In a world run by criminals, those criminals are clearly right in not trusting each other. In fact, the capitalist system breeds a climate where no-one can trust anybody.

On the level of individuals, the concern with privacy is also reaching absurd levels; absurd, because nowadays there is no such thing as privacy. Those of us who looked up our ASIO files of 25 years ago know that even then, those of us who fell foul of the governments idea of impermissible unorthodoxy, had our phones tapped, our mail interfered with, our bank-accounts investigated and our private lives scrutinised for signs of the sort of heterodoxy which might come in handy for blackmail or adverse political publicity. In a system which couldn't find money for pensioners, the sick, or for education, there was never any shortage of copious cash for snoopers at every level of society. Nor is there anything new about this. When you remember that poor Mary Stuart had her head chopped off on the basis of an intercepted letter, it becomes obvious that all power, state and private, features deception, secrecy, spying and ultimately violence to maintain its hegemony. I bet it was a part of the system in Egyptian times. In fact, we now know it was the priests' quarters that had a secret underground connection to the Nile, which allowed the hierarchy to "predict" the rising of the river. This event was of enormous importance to an economy in which the Nile played a predominant role. Just imagine what would have happened to any poor devil that might have exposed the basis of the priests' enormously exaggerated "miraculous power of prediction" to all and sundry!

Nowadays, science allows the detection of deceptions, vital or harmless, to those with the money to pay for the detective work. For instance, the old Roman law which said that the father of an offspring was "always uncertain" no longer holds in the face of DNA matching. What an explosive situation for those who regard their children as personal possession, in the light of the knowledge that in our society the father of at least 15% of all children is not the marriage partner. What an opening for the sale of electronically coded chastity belts!

Which brings us back to the realisation of just how much our society depends on the reinforcement of the concept of property, and how much effort goes into its maintenance. Think of what we could do, if all this effort and resource waste was turned into something useful, even if it was only to give people time to enjoy themselves, and relate to each other!

DIATRIBE 21 - The Irrationality Of "Economic Rationalism"

The world abounds with international conferences supposed to come to grips with the need to reduce industrial pollution in the atmosphere. The Australian Government, over the years, agreed to some very moderate targets, but since then, instead of working towards achieving some reduction in greenhouse gas production there have only been empty words. Australia, per head of population, is now the third-worst polluter in the world. Much of this is for export products like aluminium, so we are actually polluting the world to make multinationals even richer than they are already. Victorian energy policies, since the Kennett era have been the most disastrous of all; if future governments continue to insist on the "pool" system of purchasing energy based on price only and ignoring the natural divisions between peak load and base load stations, vast amounts of energy are going to be blown off as "useless" steam during off-peak periods.

The media's obsession with things economic has made little or no mention of this and other ecological arguments against privatisation. So much for the information revolution; what in the long run will affect us most gets buried, presumably because it is "too technical". This is one aspect of the suppression of information. The other is the way in which anyone with a handle to his name can still get prestigious media space to put "flat earth" views on the environment. I say this, because the people putting reactionary views on the environment are almost invariably men. I might remind you of some of these in the last few years. There was a film called "the Greenhouse Conspiracy" which was made at the cost of many hundreds of thousands by the look of the production values and was shown on SBS; there was a Professor Linter who travelled the world for a fossil fuel think-tank, lately our own Professor Plimer, who specialises in "debunking" religious nuts such as the people forever finding "Noah's Ark". They share the view that there is no Greenhouse effect, or that it may be beneficial (tell that to the islanders whose habitat is going to be drowned) or that we need to wait for further evidence.

One such attack on reality came in "New Scientist" a few years back. It was written by one Richard North - no

relation to Ollie North of Contragate fame, but equally dishonest - who claimed that environmentalism was now on the back foot, given that the catastrophes which they predicted never happened. Not a single such instance is mentioned in the article, although one of the accompanying pictures shows the Braer whose spilt oil was broken up by the storm which stranded the ship before it reached the coast and now presumably destroys organisms at the bottom of the sea instead of more visibly killing seals and seabirds. North firmly keeps his blind eye on the disasters which did happen, and go on happening, such as the Exxon Valdez, Chernobyl or the depletion of fish around the oceans. North's venom is not about supposed scientific inaccuracy. His attack is on the environmentalists themselves. That's where his ideology comes through loud and clear. The terms Communist and Socialist are thrown in for good measure; he bemoans the way in which government funded research is being used to attack what he calls progress. The drift of the article is that environmentalists are motivated by religion, and have to be opposed by rationality. This, he says, is now coming to the fore, with governments implementing changes in environmental laws and environmental organisations coming to the party. From now on, everything in the garden, or perhaps in the desert capitalist industrialism is turning the garden into, will be lovely.

As might be expected, this article provoked some correspondence. A bureaucrat from the London Environmental Council, who clearly hadn't read the article properly, agreed with North's finding that the compromisers are now in control. Greenpeace says North is wrong because four million of their subscribers and millions of other environmentally concerned people can't be wrong, which only backed up North's argument, such as it is. One lone ordinary human being makes the point that in trying to stop the ongoing disaster, we should not use reductionist nitpicking arguments, but rely on our gut reactions and defend the whole of what is left. Good on her for wearing her heart on her sleeve. But what is for us the main question is not even mentioned. North labels the environmentalists as religiously motivated people whose do-goodism is in their own imagination. He, by implication, is the one who is rational. Let me go back and quote one of his remarks: "Our problem" - he says - "has always been to establish the place of humans. The human enterprise, for good or ill, is necessarily manipulative. Humans are destined by their brain power to alter the world on a scale and in a way never seen before. We are bound to be intrusive"..... Where have we heard that before? Could it be Genesis, where Man is told to go forth and be Master of the world? Now, who is the religious one? It all adds up to this. Our technological society, instead of leading to enlightenment, has given rise to superstitions far worse than any that went before - Worse, because these superstitions are now coupled with unprecedented destructive power, and worse, because the old superstitions were due largely to ignorance. Whereas the new superstitions are due to the distortions and lies of privately owned and technologically pervasive media.

As a footnote: The following Saturday's ABC science program featured John Maddox, retiring editor of "Nature", who admitted that he has had to change his view on Greenhouse warming. Now, he says, it is up to those who claim that it does not exist to prove their arguments, because there is every sign of it happening already.

Note: This edition of *Ned Lud* dated from about 1995. Mercifully, few people today would spout such arrant nonsense as that presented by North at that time.

DIATRIBE 22 - Smart Money Or Smart Shysters?

Recent pronouncements in all sorts of media are telling us that money is going out of fashion. Mind you, for many people on low or no incomes it's been out of fashion for a long time, but this is different. What they are talking about is a new plastic card system which in itself is a sort of banking system.

Plastic cards have been around for a long time. At first they were just a personal identification system. In fact, the original bank-cards used even were of some advantage to consumers, because they gave you an interest-free period to pay up. But it wasn't long before the banks started screaming about the money they lost by this. Before you start feeling sorry for them, bear in mind that they collect a percentage from the retailer for the transaction which brings them a lot more than a month's worth of bank interest. What they want to do is to collect twice, as they do on other transactions.

Since the original bank-card, there has been a spate of other cards. Every major retailer has one. We now have EFTPOS which turns retail check-outs into bank tellers. The extra time taken to handle purchases through a check-out often forces other shoppers to leave their place in the queue and go to another check-out.

The latest is the so-called smart card or e-money for electronic money. Instead of checking back with the bank over a telephone line to establish your credit, there is a processor on the card which keeps track of the transactions. It can store as much information as a newspaper page. You pass the card through a slot, or with some systems just wave it in front of a reader, and if there is enough money left in memory, funds are transferred from your card to the retailer. In further developments, not even a card might be required, nor an issuing bank. Corporations could create their own money and sell it in the market.

What's in it for you? Sweet FA. The main problem for most people is where to get the money, not where to

spend it, or how to do the spending transaction. But there are lots of advantages for others. Amongst other things it will be yet another nail in the coffin for small shopkeepers who can't afford the machines. Already nearly half of Australia's retail business is handled through large stores, and that ratio is increasing, pushed along by technology. All along the trail left by the smart card, there will be benefits for electronics manufacturers, banks, and more sinister activities. After all, if every transaction were to be registered, private companies would be able to build up a complete profile of people's consumer patterns, which nowadays define most people's interests, habits and perceived needs. This knowledge can be sold on, made use of and divulged to agencies from debt collectors to tax departments.

It is no use saying that Australians who after all defeated the ID card wouldn't buy such systems. The so-called Australia Card was invented by the government, and that's what made people object to it. If it had been circulated in the way commercial plastic cards are being used, most people would have queued up to get one. Unfortunately, this country's population is suckers for the electronic gimmick. We have more mobile phones per head of population, for instance, than any other country in the world. People have been brainwashed into believing that they get great advantages from all these new systems. Instead, retail margins, which were pegged at less than 50% during the war, are now often four times that.

Modern shoppers in "advanced" countries are convinced that they buy the best of goods, that they buy them cheaply and that their shopping by car is the most convenient ever. Think again. Last Sunday, on the 3CR program "Telling Tales", an old resident in the Collingwood area told us what things were like in this area just after the war. Streets were well supplied by small shops where people shopped on the way from work, or sent the kids round to pick up what was needed, often without money. Shopkeepers all knew their customers; many would run an account for you without the need for plastic cards or e-money. There were lots of local employment opportunities, so people didn't need cars. There would only be one or two in entire streets.

Everybody knew their neighbours; you would leave the door open for the iceman, the baker, the butcher or the greengrocer to deliver your order while you were at work. It was not paradise by any means, but what misery there was at least shared. Just how much have we gained by having our lives filled by traffic noises, junk mail publicising the latest rip-off, and neighbours known only by the exhaust noises of their cars?

With all the labour-saving devices we now have, we no longer seem to find time to be human beings. Ask yourselves: where are all our efforts going?

DIATRIBE 23 - The Technology Of Toys

Toys have always been around. The tendency for young things to play has been built into most vertebrates by nature millions of years ago as a preparation for life, and often, particularly in predators, goes on all through life. It affords opportunity to sharpen skills as well as wits. The toys are anything that can be found, cats of all sizes use the mothers' tail, and many grown predators use live toys - that is, until these toys are dead. Human children behave the same. The less a stone or piece of wood looks like anything you know, the more chance it gives to the imagination to turn it into anything under the sun.

Play also socialises kids, because in most natural situations kids play together from a very early age. Under these conditions, as kids get older, they naturally participate in the productive activities of the tribe. In Australian tribal societies kids and their mothers gather more food more regularly than the men who often come home empty-handed from their hunting. No-one cares whether to call these activities play or work. Some of the spare time of people was occupied by making artifacts, painting, making music, dancing, cooking and other mainly social activities, which brought people closer together. There never was any division between what we now call work and leisure, because the spiritual life made many of the ritual activities appear essential to the life of the tribe, and in the sense of bonding people they were indeed essential.

All this changed with the coming of class societies. All of a sudden you had a class of people whose kids and indeed whose adult members could spend virtually all their time at play, and invent more and more complicated games involving animals, space and often human beings which were considered expendable. Children of lower classes were ruthlessly exploited as well as physically and sexually abused. This is certainly documented for the slave-owning society of ancient Rome, and is probably true for even earlier class societies in Egypt and China.

Industrial capitalism made things much worse. For kids of lower classes childhood didn't exist. Parents were brutalised by the system. The drop in child mortality and ignorance about contraception, particularly in Britain, meant that children were worked to death in mines and textile mills, sedated with opium to make them sleep while parents worked or killed by starvation or disease at baby farms. This same state of affairs is going on today in third-world countries and is fostered by multinational corporations. It is not primarily the result of economics, but that's another story.

This, at last, brings us to toys. As I said, kids growing up in a natural environment don't need toys, finding their stimulus in the company of others and the things surrounding them. However, the upper class tended to rob their kids of normal social contacts, and then tried to compensate by lavishing toys on them instead. A lot of these were quite creative, like kites, known in China for thousands of years or dolls houses where the attraction lies in the use of the toy. Spinning tops, too, were known in antiquity. They date from Roman times, if not before. Because anyone could make them, they transcended classes. So did chess, which refuses to die out as it offers an inexhaustible supply of moves.

Not so with mechanical toys. Curiously, the advent of mechanical toys of great complexity predates the industrial revolution. Some of the public mechanical clocks with their dozens of moving figures go back three hundred years or more. But privately owned toys were even more complex. If you saw Eisenstein's *Ten Days that shook the World*, you might remember the use he made of the ones found in the Czar's Winter Palace at what was then and is now again St. Petersburg. The value, if you can call it that, of a mechanical toy largely lies in owning it. Mechanical toys by their very nature can do little to inspire creativity. They are invariably out to imitate something known, be it animal, human or star-wars monster; more likely they are trucks, tanks or other bits of mobile and/or destructive machinery. Unlike a lump of wood which can represent anything, they can, except to very young children, only represent the thing they look like. In short, our children's technological toys represent the world seen through adult eyes. They are just another means of conditioning children to our world and our culture of consumerism and competitiveness. They also mirror this society in other ways. Few can be fixed by the child - or for that matter the adult - once they go wrong. Even their operation is a closed book. They are constantly superseded.

All these features make them ideal for the consumer society. But they are even more insidious in the way they sabotage creativity. This is particularly true of the computer and its games and drawing programs. Unlike chess, all but a handful of computer games force you to look for "the solution" programmed into them; once mastered, you have to get a new program. As Cliff Stoll, one of the erstwhile gurus of the information super-highway said recently after his conversion to sense (he was talking about computer magazines): "Everything is clip art (pictures supplied by software manufacturer), distorted photographs, zillions of fonts. Computers and software reward drones and punish creative people".

Of course, a child can use a lump of wood creatively and they might be able to do that with a computer, but where is the incentive? Of course, the lumps of wood are still there. But what Yuppy parent, or indeed any parent, is going to give their offspring a lump of wood when the kid next door has just been given an Indy-car simulator or a virtual reality kit? How many kids are going to spend years learning to play an instrument when you can just punch a few notes into an electronic keyboard and get the machine to play something which to any idiot, if not to a musician, sounds like a piece of music. And if they never learn it, how can these kids understand the satisfaction you get from exercising a difficult skill? Instead of expanding creative opportunities, our technological world fosters orthodoxy and mediocrity.

DIATRIBE 24 - Distrust Of Technology - The Technology Of Distrust

A recent 3CR Open House programme discussed genetic engineering. Two of the panel guests were sceptical, the other, a woman professor, was pretty gung-ho about it. The callers all showed that they did not trust this new technology. And why should they?

There are lots of good reasons why people distrust technology. My Luddite mates at the beginning of the 19th century had no illusions about capitalist technology and the way it was supposed to liberate workers; they knew that any benefits to them from the system was a by-product unwanted by the ruling class. Since then, the ideologues of society have been flat out trying to dispel the healthy distrust of a technology which still, to this day, is designed to enslave us. There are good reasons for distrust.

First and foremost, you don't trust the practitioners. Time after time, we have been promised the earth with some very plausible arguments. Alan Roberts, one of our active anti-nuclear campaigners, tells me he was initially so impressed with nuclear fusion that he wrote an article extolling it. And I remember being taken in by the so-called green revolution, which consisted of a new rice variety far more prolific than the standard grain grown in Asia. This new strain was sold to traditional farmers, who soon found out that they had to buy fertiliser and that the rice was not resistant to local pests, so they had to use pesticides as well. After a few crops, the new grain exhausted the soil. To-day, they are back to the yields they had before, but the pesticides and fertiliser still sell.

You could argue that this was a conspiracy to destroy the traditional farmer and create a basis for chemical farming. We will never know. It is quite possible that the plant breeders, who were brought up in a chemical agriculture environment, really believed they were doing the Asian farmers a good turn. The same goes for antibiotics. No-one would deny that millions of lives were saved by these so-called wonder drugs but to-day, through over-prescribing and misuse by patients, particularly where these drugs are bought on the black market,

we have now created mutated strains of bacteria for which no effective drugs exist. In nearly all these cases there might have been an initial sincere desire to help people, and the practitioners may not have known any better.

But now things have changed. As an avid reader of the New Scientist I am appalled that every new development, no matter how important it may be in helping people, is instantly evaluated in terms of how much it will be worth on the market. From this, we get a situation where the development of useful technology is not even attempted because it appears, in the short run, to offer no opportunities towards instant wealth.

The new approach to technology is based entirely on this. Instead of investigating whether there are problems, or indeed, waiting for these problems to manifest themselves and then finding a solution, so-called inventors have bright ideas, nowadays generally based on computers, and then use clever marketing techniques to convince victims that they must buy the whatever-it-is because it will give them a high return. So you have the shyster who sells to a shyster who wants to get rich quick, too.

It would seem amazing that after the new data technology has completely taken over banking, the banks now argue they can't provide customary services at the old price; and no-one asks them why that is. Of course, there is a rip-off factor, but apart from that it is simply a case of computer salesmen having talked the pants off financial institutions. At one stage, IBM's Mainframe Computers were selling at some 5 times their production cost.

We had dupes like Laurie Carmichael who bought himself a personal computer and then told workers electronic technology would introduce the millennium into the work-place. So you have an unholy alliance of unscrupulous sales-people, ignorant customers and inexperienced experts all conspiring to prevent ordinary people from getting at the truth. Under these circumstances, it is not surprising that people regard everything new with suspicion. Except those of course, who feel there is kudos in being able to posture as experts.

The unholy mixture of industrial capitalism, the consumer society and the disappearance of the last vestiges of ethics has given rise to a whole range of anti-science, religious fundamentalism, and pseudo-science. Instead of the Age of Enlightenment, we have moved back to a new Dark Ages situation, only worse. During the Middle Ages, superstition flourished because people didn't know any better. Today, it flourishes because people don't want to know any better.

While science and technology continue to be the servants of a capitalist ruling class and good from these disciplines comes only by stealth, we must continue to distrust them. Unless human concerns can be made to dominate science and engineering, we will continue in a situation where suspicion of the greed and drive for self-aggrandisement motivating those pushing innovation will lead ordinary people to ever more dangerous forms of paranoia and to the rejection of even useful technologies, medicine and science. Old Luddites knew which machines were counterproductive and needed smashing; the new lot of anti-science practitioners is continually getting rid of the baby and adoring the bath-water. Those who previously professed a belief in value-free science and engineering are now quite shameless in extracting the last bit of financial gain from these disciplines. To get rid of this, we need a real revolution in consciousness, not just a shift in the present hierarchies.

DIATRIBE 25 - Efficiency? You Would Have To Be Joking

Efficiency is the buzzword of the economic rationalists. But it also has been the buzzword of capitalism ever since it started to infest humanity. You have to start out by asking, what is efficiency? Our society defines it as doing things faster, cheaper and, above all, with less expenditure of labour. But what things - well, anything, no matter how wasteful or counterproductive. Chopping down more trees, for instance, in less time, and with least care for the future, no matter what this does to the environment which has to sustain future generations.

A recent book examines the way this has led to diminishing returns. In many areas the clean-up after gross pollution now matches the initial productive effort. This is true in areas of mining, chemical production and a lot of others.

Our system of accounting masks this reality. Take the recent Iron Monarch shipping disaster. You and I might think of this as a costly exercise, and not only for the penguins and other marine life affected by the oils spill. Not so for our national accounts. Every part of the disaster, such as the cost of the cargo of ore, the ship, and the salvage and sinking costs is actually added to the Gross National Product and figures as a plus in our annual statistics.

You might say that it surely doesn't matter what sort of stupid methods our bean-counters use to paint what they see as their picture of the world and you'd be right. But think again: in claiming that production in the capitalist is on the up and up, it is obvious that if this includes an ever greater proportion of waste and destruction, it means that useful production may well be dropping. There is no way of expressing this, because what you or I might call useful in the sense that it contributes to human life and happiness has no value to financiers who speak a

completely different language.

But the indications are there. Despite ever-growing productivity - whatever that may mean - and an ever-larger percentage of people working, we now have fewer health services, less effort spent on education and vastly less on producing manufactured goods which are instead being imported. Once again, it is difficult to pinpoint where the waste is, whether it goes into retailing in palaces instead of shops, whether it goes into more office work, insurance companies, consultancies, lawyers, accountants or more police, security personnel and so on. You name it, it is there.

You can, of course, blame the current bank charges on the open slather in a deregulated banking system and you would be right. Nevertheless, you'd think that with electronic banking previously slow handwritten entries are now done in a flash and banks wouldn't need to turn away common mortals from their counters. Although this is heresy, let me suggest that banking may actually have become more expensive. It's not the tellers you see behind the counter, but the bits you don't see. The people who build and install the computers and maintain them, the maintenance of the permanent lines to Sydney where, in the case of most banks, every transaction is sent to the main computer for processing, no matter whether it only concerns a few dollars.

So where are we going? With our resources steadily depleted by gross waste, it is getting harder to win them. A recent documentary showed a fishing harbour full of boats which only go out once a year, which is all it needs to catch the permitted quota. You can think of the nuclear power industry, whose clean-up will need an increasing percentage of people as more and more plants are decommissioned. You can think of the job of replacing forests killed by acid rain. Finally, think of the cost of coping with the pollution which can't in many cases be cleaned up any more, the vast range of respiratory disorders, the traffic chaos which kills and maims as well as stresses us, all of which, incidentally, shows up as economic growth in the statistics.

What we need to do is to redefine what we need for survival and self-expression in our society. Without such insights it is impossible to define a model for a future sustainable life on earth.

DIATRIBE 26 - Positive Technology – Part I

When the Luddites got stuck into machinery in the early part of last century, they knew precisely what they were objecting to: A specific old-established technology which was being abused to fool poor working-class buyers into accepting shoddy goods, and at the same time put the protesters out of work. To-day, the term Luddite has become a swear-word. "You've got to have technology" is the catch-phrase.

Like everything else discussed in our society, the terms used define our understanding (or misunderstanding). Strictly speaking, there is no such thing as technology in the abstract. If the term had any meaning at all, it would be so wide as to be useless. After all, a monkey using a rock to smash open a nut uses technology, but using the same term for making nuclear weapons or, indeed, computers makes that term meaningless.

We can really only talk about individual technologies, meaning the sum total of technological development in any one area. There is a technology for cracking nuts, and one for handling data. Of course, almost all technologies can be misused - you can use the rock for cracking heads as well as nuts. However, you would find it hard to discover a useful application for nuclear weapons.

Of course, ancient history bristles with examples of destructive technologies which were mainly the result of ignorance, but in general the technology of the past was beneficial. Arab, Chinese and western methods for making garments, tilling the land, harvesting that precious commodity, water, made life easier not only for the rich. Why is it that so much of to-day's technology is anti-human and counter-productive?

The answer lies in the origin and ownership of most of current technologies. Specifically, I would single out class and alienation as the origins of counterproductive technology.

To start with - class. It doesn't take a great deal of research to show that the crafts-persons of old were dominated by the demands of their masters. No matter how unimportant to life were the masters wishes, they had to be followed often at the expense of the well-being of the artisan and his or her family. This patriarchy extended not only over people, but also the environment.

While non-class nomadic groups like the Australian aboriginals developed the technology of the controlled burn to maintain grasslands, the environment was changed but was not destroyed. Class-dominated city-states, even those of pre-history, often managed to destroy themselves along with their environment. The Judaeo-Christian ethic of domination of nature, and the class society which invented it, allowed the ruling class to ultimately ignore nature even to the point of regarding some of it as evil, dirty or nasty.

Industrial technical innovation took active steps to actually generate "progress" for its own purposes. These new technologies naturally became more complex, and innovation moved beyond the individual and into the hands of corporate research. The corporate master owns not only the means of production, but the means of technological innovation. Looking through to-day's patents, the vast majority of successful innovation is owned by large enterprises. This is not surprising; even if an individual comes up with new ideas, they wouldn't find the

large sum it now costs to take out patents, let alone the cost of marketing and developing a new product or process.

Besides, all innovation, not just that developed by large companies, is market driven. There are an incredible and increasing number of patents still taken out on automotive gimmicks. On the other hand, innovation in the areas the kitchen which is generally seen as a women's place, has been stagnant for ages except for gadgets taking up space and used rarely. Even in useful areas like medicine, development is very largely in the direction of filling the whims of the Western world, while the scourges of poor countries receive little attention.

Even many of those professing concern with the environment often think in terms of recycling and of less wasteful production instead of the waste constituted by the product itself and by the system which produces it. When we say that Australians consume 40 or 50 times more than third world people, it doesn't mean that we each waste this vast amount. It means our society wastes the resources, generally with no benefit to the individual except the privilege of working harder for nothing. Indeed, in a society which produces little that is useful, the right to work so often proclaimed by old-style unionists means the right to destroy the earth. The best example is logging, where the planet is being denuded of its vital vegetation to produce paper which carries mainly advertising messages.

Only when human needs become the driving force behind innovation rather than enrichment of the few, will creative minds be liberated from the narrow thinking which governs our involvement with what we see as the world, but what in reality is a construct of 200 years of alienation brought about by the conditioning in the most destructive society which ever existed, that of industrial capitalism.

DIATRIBE 27 - Creating Catastrophes

In a past issue of New Scientist a US science writer by name of Budianski takes issue with people who believe in a so-called balance of nature. He describes this as a primitive faith in a nature which, if left alone, will develop into some sort of steady equilibrium.

If there are such people, I haven't met any of them. When we look round, we see processes in evolution and decay which have not been brought about by human intervention. Even the minerals of the earth are in constant flux, if on a vastly slower time-scale than our processes. The very mix of gases in the atmosphere is the result of vast changes caused by the interaction with plants and animals. The "web of life" notion, which this writer objects to, is not some primitive idea based on the second law of thermodynamics which states that everything finally runs down to a steady state. This law itself must have some exceptions; otherwise we and the universe wouldn't be here. The world we live in goes the opposite way; from the simple to the complex. If there was a "running down", nature would by now have run down, instead in the animal world alone we have somewhere between 10 and 100 million species.

Even if there is no simplistic "web of life", and there is not nor there can be a balance of nature, there is at any time a natural rate of changes. We can see this in the fossil record in which even so-called catastrophic extinctions take millions of years. Even the now proven rapid temperature fluctuations of the past tended to create migrations rather than instant extinctions.

So, while as Budianski claims, at any one time our eco-system is chaotic, he should surely know that chaos itself is a form of order, and that even mathematically chaotic systems return to so-called ordered states spontaneously. If someone wants to call the sum total of chaotic interactions in nature existing at any one time the "balance of nature", what's wrong with that? And if there are intellectual gnats out there who are so unobservant as to see our universe as a static entity, surely they can be gently educated rather than squashed with a drop-hammer. After all, what damage can they do? So who would want to do that?

The answer is that in our present climate, there is gold in them hills. I am talking about the US hills around Washington. The political reality inflicted on the US population is one of ruthless exploitation, with all forms of co-operation between people subordinated to the "market", just as we have it here under the economic rationalist rule of social destruction. This is quite contrary to human society as developed over hundreds of thousands of years, as anyone can work out for themselves or read in Kropotkin's great book "Mutual Aid".

Together with the social pragmatism which makes the rich obscenely rich and the poor obscenely poor, and which destroys the environment at an ever-increasing rate, we now have the ideologues of this escalating onslaught on humanity, beast and nature. The weapon they choose is so-called science. Western science lends itself very well to this purpose, because it is by nature – reductionist -that is it claims to be able to construct a picture of the whole by breaking it down into ever smaller bits. The supreme exponent of this notion was Karl Popper who tried to define the scientific approach as putting forward propositions which can be disproved. By this definition, all the wonderful work done in observing and classifying nature by some of the world's greatest scientists is unscientific and so, by the way, is Popper's own definition because it can't be disproved.

This way, by nitpicking the notion of a balance of nature we seem to be able to prove it doesn't exist; this isn't hard because we are only looking at the words that make up the definition of a balance of nature.

Having developed the theme, the natural - and profitable - next step is to suggest that whatever we do to our people and our environment can - and in the long run must - be controlled. That's the good old technological fix. Therein lies disaster, because it assumes that in attempting to control nature we know what we are doing. This assumption is absurd. Despite our "knowledge", the introduction of foreign species into Australia goes on unabated - it was rabbits, cane-toads, and carp; now its marine organisms, a new rabbit virus which got away and the destruction of our coral reefs we don't even understand because we have no idea of the ecology of a coral reef.

Like all other organisms on this planet, human beings cannot tread it without leaving their mark. However, unlike other species, we tread it with bull-dozers, chain-saws and high explosives. We tread it with chemicals, with plastic waste, with factory fishing and with artificial fertiliser. Few of these inroads are necessary for life, they are necessary for profit. In the process, we are lumbering from crisis to crisis, each one deeper than the one before. With each crisis we lose not only part of our environment, but part of our human nature.

The story about the lemmings is a furphy. The real lemmings on earth are human beings in the grip of capitalist society. If we only look ahead instead of staring on the ground in front of us, we would realise that the danger we are facing doesn't lie in the precipice we are heading for, but in the leaders who are telling us that that's the only way to go. And that includes a lot of would-be scientists like Budianski.

DIATRIBE 28 - Mutual Aid

Previously we talked about the way social Darwinism is now being practiced by economic rationalists. Social Darwinism claims that what they see as Darwin's ideas of natural selection or the survival of the fittest also hold for human relationships, and that our human species can only progress if the weakest perish and the strong survive. In our present-day world, that means that those who rob, lie, cheat and murder to achieve power would be seen as the fittest to survive; those who routinely practise mass rape would ensure the predominance of their genes in future generations. Humanity wouldn't have lasted long that way.

Darwin would, of course, never have subscribed to this crude notion of "a war of each against all". He was an excellent observer and must have been aware that in many species co-operation for a variety of reasons is the natural state; even between widely different species there is symbiosis - one species relies on the other to survive.

One of the earliest critics of Social Darwinism was Prince Petr Kropotkin, born in 1842, who became a militant in the early seventies of the last century, was imprisoned in the infamous fortress of Peter and Paul in St. Petersburg and escaped in 1876. From 1917, his anarchist views made him a refugee in Britain, France, and Switzerland. He wrote several books; one of the best remembered is called *Mutual Aid*. He wrote it as the leader of the group opposing Social Darwinism at the turn of the century.

In *Mutual Aid*, Kropotkin deals in a scientific way with the evidence of co-operation in animals at various levels of the evolutionary scale from ants and bees to primates. He then went on to show that hunter-gatherer tribes could not have existed except by mutual co-operation, nor could mediaeval cities have flourished if there had been the war of each against all. He finished on what for him was the present day, and showed co-operation as widespread, at least amongst the "lower classes", workers and peasants, in the form of unions and voluntary associations.

However, later scientists questioned Kropotkin's view on the basis that it was obvious to them that co-operation couldn't work. The first prairie dog which gave an alarm to its mates instead of scurrying down a burrow when it spotted a hawk would be the first to get eaten; the ones likely to survive would be the ones which selfishly looked after number one first. This concept could be extended down to the smallest organism, and indeed, Richard Dawkins applied it to the point where he talked about selfish genes and suggested that all organisms were the result of genes which blindly and short-sightedly pursued their short-term aims.

Meanwhile, other scientists had to explain why, if nature "obviously" favoured the most brutal and selfish, in reality nature abounds with mutual co-operation, just as Kropotkin had pointed out. They came up with the notion of "Group Selection", which suggested that "co-operative genes" had arisen in a group rather than in individuals, which led to the entire group winning the race for survival. This argument was a bit weak, looked at in the light of the prairie dog example.

My thanks to Alan Roberts, for lending me a book which offers a solution for the conundrum. It is called *The Evolution of Cooperation*. The Author, Robert Axelrod, a political scientist with mathematical leanings, shows quite clearly that although intuition tells us that in any society the biggest bastard wins, in practice strategies of co-operation are most successful for both the group and the individual. This is so because the biggest bastard,

although initially successful in duping his fellows, automatically is on his own after a short while.

Axelrod solicited computer programmes written by a number of people who participated in a test. These programmes simulated various strategies and Axelrod had computers play one against the other. It soon became obvious that the "nice" strategies were superior to the "nasty" ones. The one which won was a simple tit for tat strategy, which retaliated only when the other party took the first nasty step. By extending the experiment further and gradually eliminating the least successful strategies, as would happen in a "Survival of the Fittest" situation, Tit for Tat, the simplest and most easily understood strategy, won hands down. What is more, he shows that a co-operative group situation cannot be destroyed by an infiltrating "nasty" virus except under very special conditions.

Axelrod then goes on to explain that this simulation worked in WW I when troops in trench warfare either refused to fire first or shot in the air, without communicating with the so-called enemy. The book shows that these principles work even on the bacterial level, and certainly, as Kropotkin explained, in many human situations.

There remains one question: The copy of Kropotkin's Mutual Aid which I was using was published just before WW II. The foreword says that at that time crude Social Darwinism was no longer acceptable. Why then, is it the dominant ideology, in the form of economic rationalism 55 years later?

Axelrod shows that given natural conditions, co-operation will spread. However, today's technologies of lies and deceit are not natural conditions. Co-operation is being suppressed by physical violence in third world countries, and by mass propaganda and structural violence such as threats of job-losses in the industrial world. While bacteria are still promoting co-operation, capitalist society consistently promotes the destruction of human beings and nature.

DIATRIBE 29 - The Technology Of War

Human beings are the only species which routinely kill their own kind in mass fighting. However, in earlier times, tribal warfare was ritual rather than lethal, and combatants were limited to adult men. In recent history New Guinea offered good examples of this. With the advent of hierarchical structures, this changed. Slaughter of women and children after a victory became routine. The Old Testament provides approval for genocide by Israelite tribes.

These wars were, like today's, about power and possessions, particularly of land. More and more effort went into the production of armaments. In Roman and Greek history, toadies of warlords could still pretend that courage and skill by commanders and their men gave them a superior chance of survival. With the development in martial technology, by using bows and arrows, you could kill at a distance, and massive showers of arrows were fired indiscriminately. Survival became more and more a matter of chance.

By WW I hand-to-hand fighting had become a matter of rarity. Most soldiers were killed by an unseen enemy using shells, mortars and grenades, and later poison gas. Submerged submarines would routinely sink civilian ships. With technologies of aerial warfare, the war was carried to civilians. In WW II, leaders concentrated on making war on the civilian population rather than on soldiery which could strike back. The fire-bombing of Tokyo and Dresden carried on what the Germans had started at Coventry, and the two nuclear weapons exploded over Japan marked the ultimate obscenity of warfare.

With modern weaponry, physical strength is no longer very important to those dealing out death. 10 year olds can and do become mass murderers. Rape, always a feature of victorious armies, has now become an organised weapon rather than an incidental occurrence.

In parallel with weapons technology, today's barbarians have made use of modern techniques of propaganda, disinformation and brutalisation. For instance, using these demonisation techniques, Saddam Hussein was turned from a friend of the US into a monster overnight. These techniques can be tested on the population. For instance, during the Vietnam War, US media widely circulated pictures of burning homes and napalmed children, with the justification that these people were sub-humans who would understand nothing else.

Popular revulsion against these methods did not change the methods; instead, in the Gulf War PR films from armament manufacturers were used to demonstrate that pinpoint accuracy of new weaponry eliminated civilian casualties. The reality of one-sided battles which killed perhaps a quarter of a million people has never been grasped by the majority of US people and by US flunkey states such as Australia.

How can ordinary human beings be made to accept such horrors as natural? Long before Virtual Reality, the distancing from reality of ordinary people, let alone the leaders, allowed and encouraged people to accept myths which ran counter to their own experiences. Typical examples are the wrong evaluation of dangers which make people more scared of snakes and spiders than of lethal motor cars, and the acceptance of totally undefined constructs such as "the economy". Currently, even though environmental disaster appears almost inevitable and

the forces of nature already unleashed by runaway technology kill tens of thousands every year, our government which is known to consist of a consistent pack of liars, has managed to persuade a large part of the population that their greatest threat comes from terrorists. Karl Marx called these nonsense beliefs the alienation of man as a species being, where fellow-humans could be looked on as sub-human because of gender or skin-colour. This alienation would go as far as to declare and treat other human beings as dispensable.

The capacity to do this appears to be inherent in what has been misnamed, with the same arrogance, "homo sapiens" meaning "sensible" man. Modern technology and mind control has exacerbated this natural capacity of turning reality into concepts to convince us that life on earth is a war of each against all. This destructive myth lends the theoretical basis which allows the exploiting class to pursue what they feel is their own advantage, even if it will, if allowed to continue, destroy them along with their victims.

Meanwhile, a large part of our technological development is the result of war techniques, paid for by the people and appropriated by private industry. This is true for most of our electronics, much of our chemistry and all of our nuclear and space technology. It still goes on with NASA trying to extort more cash for developing means of shooting down asteroids which might impact on earth once in tens of thousands of years and missiles which so far exist only in the US arsenal, while man-made environmental disasters which seem certain to destroy humanity within a few generations are ignored. The technology of war is just one aspect of the escalating ruling class attack on humanity.

DIATRIBE 30 - Positive Technology – Part II

The list of destructive - and unnecessary - technologies could be expanded endlessly. It would, however, be totally meaningless to declare Technology in the abstract as either unnecessary or as wholly counterproductive. In fact, we shouldn't talk about technology in the abstract; to have a collective term which encompasses everything from a stone spear-tip to a guided nuclear missile would be almost meaningless. Its only useful point would be to show an unbroken line of development from homo-sapiens to other animals which also use primitive tools.

Why do we need technologies? In the first place, to deal with the problems of societies expanding in numbers. Hunter-Gatherers require very large territories, as was the case in Australia prior to the white invasion. Even then, technologies such as the use of fire to maintain grass-lands, and skills in producing sharp stone tools were essential. Recent research has shown that in Tasmania the range of stone tools actually diminished over the millennia, suggesting a move from an environment which required additional items. Technology should be seen not to be static, but to vary with time and place. Many new technologies came in with agriculture which, in turn, allowed more people to be spared to specialise in crafts and concentrate on non-essentials. This made class societies and their waste and wars possible.

The idea of applying technology to speed up production is recent. One Roman emperor couldn't see the advantages of production machinery - he wanted to keep his slaves busy. Some of the methods of automatic production, such as the card-controlled Jacquard loom had been used long before on mechanical organs; toys for the rich, even in the 17th century, took precedence over the needs of the people. Indeed, the new technologies allowed undreamed-of exploitation, and were specifically designed for the purpose. Since then, nothing has changed. Massive unemployment goes hand-in-hand with long hours of work. Much of our technical expertise and inventive effort goes on war.

From this negative assessment we can move to set a few guidelines for future technological developments in a rational as well as human-centred society, capable of coping with the present huge world populations which are set to reach 10 billion even if contraceptive practices improve. There is our first need - safe contraception for all, preferably introducing an era where the production of children becomes a deliberate act, rather than an accident. We need to revert to developing drugs and techniques to finally defeat the re-emerging spectres of widespread Malaria and TB, now neglected because they are the diseases of the poor or the poor countries. We badly need water-saving agriculture, chemical-free pest controls, and non-animal protein sources.

We need to minimise the transport of food and its packaging, as well as the refrigeration which is now our biggest domestic electricity consumer. We need housing appropriate to geographic position, requiring less energy input. There are the problems of earthquakes, typhoons and floods. We need technologies which will encourage community living rather than individual consumption. We should be able to develop new forms of community self-expression instead of the non-culture imposed on us by the consumer society. Our resource use needs to go down to a fraction of its present level; this can be done by reducing throw-away concepts and shifting consumption to the community in such areas as transport, heating and cooking.

Some people may think the society I am projecting would be dull and boring. Quite the reverse. Our society of drug use, gambling, youth suicide and violence is the direct result of the dullness of the industrial society which can never be avoided by buying yet another gimmick, at the expense of human relations. Industrialism by

definition seeks ways of destroying individuality in both work and self-expression. The search for solutions to our real problems can and must involve the entire population if it is to be effective, because the remedies of reductionist science, technology and politics are not to be found in the practitioners of these disciplines.

In its way, hunter-gatherer societies were satisfying to the human psyche because despite their communal culture, gathering and hunting food was an individual skill with its own satisfactions. Their fears were related to the dangers imposed by nature; overcoming them gave a feeling of self-respect. Our fears are constructs of our society and unrelated to our real problems; indeed often they are the real problem. While it is admirable that men and women should now search for ways to deal with their own reactions to our society's impositions, it would be lots better if these constraints, many of which are inexplicable to people in so-called less developed societies, could be dealt with so as to free us for better things.

To attack some of these problems needs more than a change of economic system. Blake's "dark satanic mills" were mills of the mind as well as of industry. We don't just need a different economic system; we need a different social system which allows the full flowering of humanity. We will achieve this not by new technological gimmicks but by tackling our evolving problems by a new approach to everything, including collectively developed technology. Freed from ancient superstitions, and from present ones, humanity could now lead more interesting and indeed inspiring lives, if we take our futures into our own hands.

DIATRIBE 31 - The Motor Car Revisited

By popular request, the subject today is a repeat of an earlier one, the motor vehicle. This is to celebrate, if that's the word, the Grand Prix which will have lots of people sitting in free seats and some actually paying to watch complicated bits of machinery going round and round. Most of the watchers won't understand what is actually going on, but will be hoping to see one or the other car come to grief either in a collision or some other smash, and, with a bit of luck, in the process maim the driver or, better still, incinerate him. It's not as good as the old Roman Colosseum where they managed to do in anything up to 5000 victims in a single show, but as a redeeming feature it appears to be every bit as expensive as these games which drove Roman Emperors bankrupt. The noise of the Albert Park GP will be heard from Footscray to Glen Iris, the pollution from the race and its visitors' cars will cover the city, and with a bit of luck the petrol-heads attending the race will enrich the GNP by emulating the GP and thereby having dozens of smashes. Some of them might even be fatal. All in all, no single spectacle could be more typical of our alienated society.

Once upon a time, motor cars were a luxury which, for the rich, replaced the horse and carriage as a mark of affluence. The change from this to a means of transport was largely due to Henry Ford who had the vision, if you can call it that, of seeing everybody get around in one of his T models called the "Tin Lizzie". Henry understood the value of mass production as a means of lowering prices and raising profits, and, as late as 1927, refused to follow the trend of other makers who offered cars in various colours, saying that his customers could have any colour as long as it was black.

From its inception the car was surrounded by often deliberately created myths. It doubled as a means of transport and a means of recreation. As a huge industry, it soon created a powerful lobby which could destroy more convenient forms of transport and force the building of the entire city system to be shaped by the needs of the car rather than its human occupants. It became the most frequent cause of death for young people; it was depicted as a form of self-expression despite its mass-produced sameness, as a sexual turn-on for women (the blonde draped over the bonnet) and an investment.

Technically, the reality of the car has changed little. Its speed in built-up areas, if anything, is slower than it was in 1910 or so. That's its average speed. If you divide the distance travelled by the car by the time spent in the car, plus the time spent working for it, plus the time spent working for the cost to the community reflected in your taxes, you would be lucky to arrive at more than 8 km/h.

Somebody worked out that Germany could supply free public urban transport and give each inhabitant one free public transport trip of a few thousand kilometres, as well as a new bicycle and a present of some \$10,000 dollars annually, if they could abolish the private car. All of this could be covered from the current colossal social cost of private transport. This social cost is made up of road building and maintenance, the ravages of pollution, the national cost of fuel imports, and the cost of public hospitals and support of those maimed or subjected to respiratory disorders by our favourite toy.

However, unfortunately, the car is no longer just a toy, but a desperate necessity for cities bereft of planning for less travel and use of public transport. Here are some more myths:

1. We get around more: In terms of kilometres travelled per person, yes! In terms of travel experience – no! Read the biographies of 18th and 19th century musicians, for instance, or that of journeymen in various trades.

2. Cars are constantly being greatly improved. True, if you look into a modern engine compartment, it resembles a plumber's nightmare. However, apart from add-ons like automatic gear-boxes which by now also go back a long way, and the engine management systems which have reduced pollution but have not prevented cars from contributing 80% of urban smog, there is little inventive novelty. Hemispherical heads, overhead cam-shafts, aluminium bodies and all that jazz was around more than 70 years ago. The often repeated story of a car which will run 100 km on a litre of fuel is technically impossible due to the laws of thermodynamics. Developments like the Sarich engines are mainly fraud. An anecdote has it that when BHP took over the development of the Sarich engine, they had the money and Sarich had the experience, whereas later Sarich had the money and BHP "had the experience".
3. "The pollution-free electric car is just around the corner". At the end of the 19th century there were more electric cars on the road than petrol-driven ones; since then, the battery which is the only component capable of improvement, has remained much the same despite lots of money being spent on it. Besides, if present cars were replaced by battery driven ones, it would only shift the pollution to the country, not eliminate it, because the energy required would still come from fossil fuel, only it would come via the electricity grid.

In recent times, hybrid cars have become fashionable as being environmentally sound. They use batteries at low speeds, changing to hydrocarbon fuel for occasions where increased engine output is required. At level travel a small car requires only about 3 Kw to move at city speeds before air resistance kicks in. The hybrid is a basically sound idea, if the extra power is spent on hill climbing and acceleration. Unfortunately, it is advertised and used as a dual use vehicle, and, driven at 120 – 150 Km/h speeds most of the advantages are lost. Nor are these cars small. Once again it is the psychology of the driver which prevails.

Amongst the worst aspects of the internal combustion society is road freight. Where roads are used by trucks, virtually all their maintenance costs are due to them. A semi-trailer literally causes a million times more wear than a passenger car. Road wear is proportional to the fourth power of axle weight. The apparent "efficiency" of road transport is due to figure juggling.

The most efficient transport machine ever invented is the bicycle. It is also the fastest vehicle in heavy traffic. The only fuel it burns is the excess fat of the cyclist. As was proved in the Vietnam War, it can carry huge loads, all its parts are replaceable, and the pollution generated in its manufacture is minimal.

One thing is certain: if the motor car has a future, humanity hasn't.

DIATRIBE 32 - Destroying The Third World

In the West technology and industrial society was introduced by processes which appeared benign because they were or at least seemed to be indigenous. No such niceties are observed in inflicting destructive technologies on the Third world.

This comes to mind in reading about another hydro-electric dam to be built, this time in Namibia, where the beautiful Epupa Falls, which are an international Tourist attraction, are to be destroyed. By now, the destructive potential of dams is well understood. It wasn't always so. Fifteen or twenty years ago, most conservation-minded people thought that dams were a good thing; Friends of the Earth even has a poster saying so. But now we know that they rarely succeed in coming up to expectations, and that their incidental effects are often disastrous. We don't have to go far to get a good, if that's the word, example. Our own Murray River, backed by the Snowy River project which was hailed as a Wonder of the World, has succeeded in causing widespread salination problems, infestations by poisonous blue-green algae, and may threaten some of Australia's richest agricultural lands with infertility.

To get back to dams elsewhere, and some of the havoc they cause. In tropical areas, they increase the incidence of malaria and bilharzia, which thrive on still water, as well as causing salination, as they do here. Many of these dams in areas where the river carries silt block up very quickly; this is true of the High Aswan dam, which is said to have already lost a quarter of its volume to silt. Worse still, the silt should have been spread over the fields of Egypt during annual Nile floods in a cycle which kept the country in food for many thousands of years. Damming the Danube in Slovakia has destroyed natural wetlands and changed life for the worse for Hungary, leading to intense friction between countries. A new dam in India is going to drive a quarter of a million local people from their homes and will silt up very quickly. If the poor results are known, and the people themselves are up in arms as in India and in Namibia, often to the point of laying down their lives in opposition, why are these projects going on? There are many reasons, none of them to do with the welfare of the people.

Firstly, there is foreign aid. Lots of people believe that foreign aid consists of giving money to poor countries. However foreign aid has been more correctly defined as a system where the poor in rich countries are made to

support the rich in poor countries. But even that is not the important mechanism. More generally, aid is not given as cash, but as a loan used to pay the industries of the donor; in other words, aid is good business. The flow of profits from poor countries to the rich is many times more than the much publicised reverse.

One of these so-called aid areas in the past has been dam-building. The world's dams are designed and built by very few countries, of which Australia is one. Wherever dams are built in Third World countries, the money goes to large first world corporations, but the crippling debt they impose on the people where these projects are sited, means that their entire life-style has to change from subsistence to cash-crops, usually of commodities which are already depressed in world markets. Indeed, for years the IMF and World Bank have insisted on these major projects before granting any loans to poor countries; at the same time they have stipulated total privatisation of the countries' assets generally for US benefit. Lately, because of world-wide protests, these agencies have become more circumspect, and there is just a chance this may stop the Namibian project.

Another cause of unnecessary dam-building is corruption. Big projects always result in massive kick-backs for local politicians and bureaucrats. Marcos, for instance, was slated to get a billion dollars from Westinghouse out of building a nuclear plant in the Philippines, and it's a safe bet the Suharto clique is getting a similar rake-off from the projected Indonesian reactors. This factor seems to be at work in Namibia, too. After all, the country has a tiny, scattered population and an electricity grid is not warranted; decentralised solar power would seem more realistic; as well, the country has vast gas reserves. There is widespread opposition by many groups who all have better alternatives, if alternatives are indeed needed. But, as usual, civil servants have been warned they will lose their jobs if they as much as discuss these proposals. A member of a group called Earthlife Namibia says: "The proposal to dam the Cunene River at Epupa Falls is patently absurd for economic, ecological and social reasons". But the project goes on. It will impoverish the country, just like the previous large undertaking, the world's largest open-cut uranium mine at Rossing, which is working at a fraction of capacity due to plummeting uranium prices.

The irony is that Namibia's six year old constitution is one of the few in the world which is supposed to guarantee that "ecosystems, essential ecological processes and biological diversity are maintained and living natural resources are utilised on a sustainable basis for the benefit of all Namibians, both present and future".

As someone might have said: "All power corrupts, but electrical power corrupts absolutely."

DIATRIBE 33 - The Dignity Of Labour

Today is May Day - the real one which falls on May 1, and which is celebrated in many countries as the workers' day. On this day workers in many countries celebrate their history and their achievements. In other countries defiance brings workers into the streets. Above all, May Day represents a day where we are supposed to celebrate the dignity of labour. Dignity of Labour? Most of us no longer know what it means. Today is the day which invites us to look at labour to-day, what should make it dignified, and how we can achieve this dignity.

There are different aspects to labour. There is the labour which produces our subsistence. There is the labour we render to our families, our friends and to the community. There is the labour we do for money. There is the labour we engage in to create fulfilment and satisfaction for ourselves. Unfortunately, we have become so mixed up that when someone mentions work, we immediately think of men working for a crust in some trade, business or factory, work done for a boss and paid for - if you are lucky - by the hour at the end of the week. Actually, this picture is wrong in every detail. Most of the world's - and Australia's - really important work is done by women for little or no pay. Economists have invented a distorted picture in which nothing counts except what generates money, and preferably a profit for some exploiter. Much of this work is meaningless to those who perform it, and that's no accident.

Once upon a time, jobs were almost complete in themselves. A smith made shoes and applied them to the horse. All that was needed was the iron. A peasant farmer tilled the soil, sowed and harvested, did the threshing and took the grain to the miller. People didn't do these tasks on their own; families and neighbours joined in. No matter how hard and backbreaking the labour, there were work-songs and conviviality. With the variation in the type of effort, the bodies of workers were not likely to be destroyed by repetitive labour. Even the spinning and weaving was done in the same environment. No-one now knows whether by modern standards this was efficient. Our machines turn out hundreds of times more per working hour, but then we spend vast amounts on transport and in caring for the unemployed. In the process the dignity of labour also disappeared.

This was no accident. Way back in the 1790's, James Watt was one of the bosses who introduced the division of labour into his workshops; it was obvious to all, including Karl Marx that this was done for efficiency. Marx even went to the trouble of spelling it out, using the example of the manufacture of needles. If one worker worked on each needle from beginning to end, and then started on the next one, clearly this was less efficient, many times over, than having workers carrying out one operation each on all work-pieces. While this is obvious to any idiot, it

happens to be wrong. Any worker having to make a number of similar pieces will carry out their own division of labour, by doing one operation on many pieces before moving on to the next operation.

Watt's purpose was, as he himself wrote, to break up the workers and to stop them from talking to each other. To put it more simply, his purpose was to destroy the dignity of the craftsman and to reduce him to the status of a labourer. Indeed, this has been not a side-effect, but one of the main purposes of industrialisation. It is known as deskilling and is accelerating at this time of declining economic fortunes.

Why are the bosses doing this? It is, as I said, not primarily for money-saving reasons. Craftspeople were proud and dignified; given half a chance, they would refuse to work under degrading conditions. The eight-hour day was introduced by skilled stone-masons who could not be replaced by labourers; nor could the shearers, who went on strike in the 1890's, be replaced by rouseabouts. And the attempt to demoralise workers still goes on - why else would they keep on spending millions on impossible sheep-shearing robots, when after 30 years of experimenting they ought to know better.

Nowadays this attack on our dignity is reinforced by media and academia. Have you noticed how all jobs nowadays are reduced to being performed by unspecified "labour" in the abstract? How it is assumed that 90% of all jobs are performed by unskilled people, when the reverse is true - 95% of all jobs have a large skill component. How all the "real people" in films and stories are "executives", and productive workers on any level don't get a look in. How, according to some academics, all productive tasks are now performed by computers and work as we have known it, or as the academics have never known it, is now disappearing. Even the few jobs that still have some inherent dignity are being denigrated.

However, the worst aspect of work in our society is that the most important tasks, those of caring and supporting each other, have been declared unimportant, mainly because they are generally done by women. Some Yuppy dreaming up an advertising slogan for some overpriced and utterly useless product is rated higher, much higher, than a nurse or a teacher. Some feminists haven't helped by insisting that for women to achieve status, they have to get into management or into traditional male jobs, when the first step should be the recognition that most present-day so-called women's work is much more important to the community. The reason why housework is boring and degrading is that it is left to one person and the domestic situation makes it difficult to perform it co-operatively.

So, there are reasons why work is no longer dignified. It is alienated, meaning it is performed for money and not for the community. Industrialism is deliberately turning work into punishment. The mechanisms which impose popular philosophy have taken the pride from exercising our skills. Even work in the community has been denigrated to "do it yourself" commercial exploitation, suggesting that "amateurs" are by definition incompetent. And the last few years have even robbed us of much of the pride of belonging to the organised working class. Yet pride in skills is not easily destroyed. It will be a sad day when we lose contact with reality to the extent of becoming declassed and demoralised. Long live May Day!

DIATRIBE 34 - Abandon Hope, All Ye Who Embrace The Technological Fix

Last time we talked about the way the destruction of working skills and the production of goods which are intrinsically useless and counterproductive was destroying what we used to call the dignity of labour. To-day, I want to look at the destruction of hope brought about by the technological society.

Hope is the stuff of life itself, not only for human beings, I believe, but for all higher animals. Every beast in pursuing life itself does so in expectation that their activities will yield results; for instance, a penguin standing in minus 40 degrees in the Antarctic cold and darkness surely would give up if it didn't expect subconsciously that at the end of winter there would be food and relative warmth. Also, the penguin's lot is made bearable by being in a colony with hundreds of others with similar expectations.

In animals we call this the survival instinct because we don't know how much of it is conscious and how much is instinctive. In human beings it is called hope and we think it is a conscious process which happens every time our conditions appear intolerable. The way it occurs in situations which appear hopeless to an outsider would suggest it is also largely an instinct. People have projected hope in concentration camps, or when buried in mine disasters or stranded in the middle of an apparently unending ocean, as long as there are others sharing their fate. Hope is particularly strong in the young with their knowledge of a life before them. Hope is strongest where people are not helpless even in an apparently hopeless situation.

Hope is the well-spring of action. People don't risk their lives in revolutions because their situation is hopeless, but because they think they have seen a ray of light in their darkness somewhere. They will work at their own future as long as this is possible and the harder they work at it the stronger hope will appear. In the past, threats to humanity have come from nature or from their own oppressors. They coped with natural threats in the knowledge that their species had always survived, regardless of individual fates. They coped with oppression

because they knew their oppressors were also mortal, and that, with a bit of luck, that mortality could be given a bit of a push.

When our young people now die from suicide in horrific numbers equal or larger than those killed in car accidents, we have to ask ourselves why this happens in the midst of relative affluence. This question also engaged Durkheim a hundred years ago. He found that there were far fewer suicides during wars than in peacetime; with the pragmatism of right-wing ideology he concluded that therefore war must be a good thing, regardless of the numbers torn to bits by war itself.

You don't have to be a genius to explain the suicide phenomenon then and now. War gives the population, particularly the male population a sense of involvement and a feeling of better things to come after the inevitable victory. Defeat is never thought possible. On the other hand, we seem to have created societies in which peacetime offers, for many people, little incentive for the future. It is my feeling that technology and its outlook is largely responsible.

Not so long ago, science and technology were touted as giving us an easier life with less stress. Science would abolish hunger and disease, and in short, make us masters of the earth, whatever that was supposed to mean. In fact, this very concept was counter-productive. It was a cargo-cult rather than a philosophy. It didn't provide for involvement of ordinary people; on the contrary, ordinary people were to consume these goodies, and the less they understood about the nature of the technology the better.

This has been taken to the ultimate degree, with the present tendency, for instance, to not even allow people in to dial their own telephone numbers, but to have voice-controlled systems which do it for you. Never mind the fact that you may have to learn to pronounce the numbers in a peculiar way, and that non-English-speaking people who now form a large percentage of the population would have difficulties in getting through. Now you may say it is going to work wonders for some disabled people, but that's not what it is being done for, because the market is far too small, and in any case you can have special equipment. No, the implication is that dialling a number is too difficult for ordinary people. You could go on forever giving examples of the way the common abilities of the people are being denigrated and they are being written out of society by technology.

Also, the hopes raised in people about technological solutions for our needs have now changed. We are told that new technology is a law of nature, and we must learn to adapt to it. We are working longer hours, and job security is a thing of the past, all supposedly due to changes in technology. Instead of the promised means of liberation, science and technology have turned into means of enslavement.

This enslavement is qualitatively different from previous ones precisely because it appears as a law of nature and not connected with human oppressors. Those prevented by technology from participation in society have nothing to look forward to. Once people internalise that "this is as good as it gets", hope flies out the window for good, and this could well explain many of the suicides.

Of course, our technology is just as much an imposition as all previous oppression. What we need to realise is that it exists. What we need to do is to assert the primacy of human beings, in their skills, in their intelligence and in their feelings. Remember that if technology is the answer, we have asked the wrong question.

DIATRIBE 35 - The Technology Of War And What It Does To The Human Psyche

Recently the New Scientist carried an article describing the construction of land-mines and discussed ways of disposing of them. Even old mines had very little metal in them and are therefore fiendishly hard to find; as if this wasn't enough, new mines are being designed which contain no metal at all. Once mines have been in the ground for a couple of years, particularly in forest country, they become covered with soil and detection, apart from being highly dangerous, is incredibly laborious. A land-mine costs around \$3; finding and removing it costs between \$3000 and \$5000.

However, I saw the article as a ray of hope. Obviously written by some-one in the military, it gave me the feeling that at last some of the huge sums available to the war-makers were going towards some useful purpose. Then I struck a passage which dismissed one mine-detection system as useless, because it couldn't be used after dark. It dawned on me that they, the military, were not interested in anything other than military mine-clearing; even if they found some simple way of stopping mines from blowing the legs off kids at play or peasants working in the fields, they wouldn't want to bother with it.

Later there was a letter complaining that the writer of the first article had exaggerated the size of the explosive charges in mines. Land-mines were not intended to kill, said the correspondent. Far better to disable three soldiers, the one who had been crippled and the two others who had to carry him off the field, as well as being demoralised by the nature of the injury.

We tend to regard war technology as horrible because it seems to concentrate on killing the maximum number of

victims, military and civilian. What seems far more inconceivable is the fiendish ingenuity of the destruction ranging from so-called soft-nosed bullets, used by the Victoria Police Special Operations Unit, which literally tear the victim to pieces, to the deliberate starting of fire storms as in the final days of the last war in Dresden and Tokyo, actions of no strategic value but exercises in deliberate cruelty against civilians.

What does this have to do with technology? Throughout the ages, men, women and children have been tortured and massacred in wars. There is, I think, a difference. Two differences, actually. One is the scale of the investment in the torture inflicted. About half the world's scientists and engineers are engaged in designing and building these weapons and systems. We express horror at the German chemists who developed the gases used in Auschwitz. Many of our own scientists have been engaged in chemical warfare experiments, and have even experimented on our troops to discover their effectiveness, not during the war but years afterwards.

The cost of this is phenomenal, \$10 billion per year, much of which goes into technology. The frigate launched last Friday alone cost \$500 million. It was given an aboriginal tribal name, an insult to our indigenous people who live in indignity and poverty. Come to think of it, nearly all Australian-designed weapons carry aboriginal names. The other difference to warfare using less sophisticated weapons is the coldly calculated nature of their development in peace-time, and the way they now form a large part of the trade between nations. No longer can there be any pretence that these horrors are developed to guard us against any conceivable threat. The limbs that are blown off children by land-mines promoted by Australian governments are those of children in other countries; the motivation for promoting them is more money for the already obscenely rich. Capitalism will not only step over corpses to increase profits, it will create corpses to get there.

Technology allows people to distance themselves from the horrific crimes which they are personally committing. I remember a letter from a German airman in WWII which told his family of the pretty patterns made by refugees as they scattered from the roads he was machine-gunning. The chemist designing a new poison gas or laser weapon capable of blinding millions from space feels no more responsible than the timber-worker who murders old growth forest for wood-chips or the manager who sacks workers who have spent most of their lives in the service of the company. From this attitude it is only a short step to hunt down human beings with automatic weapons as if it was a video game. The alienation of the technological society is visible in the aggression on the roads, the football and pub brawls, and in the way human contact is now seen as communicating with some-one half a world away on the internet, while not giving the time of day to the person next door and indeed barring your doors and windows to stop this from happening.

It would be ridiculous to blame all of this on technology, but technology must take a share of the blame. And while we are often not in a position to combat the impositions of capitalism effectively, we should realise our increasing alienation and refuse to accept the toys of technological consumerism as a substitute for our humanity.

DIATRIBE 36 - The Technology Of Community Destruction

Two weeks ago the Chief Commissioner of Kingston announced that four small libraries in the Moorabbin area would be closed. Even though Armadale library had previously been closed under Kennett-appointed Commissioners, it was re-opened recently. This step by Kingston, which has brought an instant massive reaction from residents, shows the arrogance of bureaucrats who know there is no mechanism of effective protest. However, the chances are that, as with the Fitzroy Pool and Richmond Secondary, public pressure will prevail.

Let's look at the reasons given for the closures. You are likely to have guessed them already the "information super-highway". Specifically, in this case, a report from the Sydney University based Think-tank calling itself the "Centre for innovation and international competitiveness". One look at the report shows that it was clearly written by people who never use public libraries. That's not unusual with academics. Surveys show that academics are one of the few groups who hardly ever use the public library; when they do, it's for kids books, music etc. Of course, why should they, with university libraries at their disposal. What is appalling, in this case, is that the report was not written by specialists in library studies, but by people who not only don't use libraries but who know nothing about what goes on there. They don't know about the technology which is already there, the programmes which are in place, or the type of user. In fact they don't know the first thing; they claim that only 30% of the population uses libraries when in fact the figure is twice that. In short, what motivates them is the \$60,000 ratepayers had to fork out for this 20-page farrago, and the instructions received from their masters, in true Dahlek style: "Exterminate, Exterminate Exterminate".

But this is not the only group of Dahleks. In each case where libraries have been decimated, there has been a suitable report from some highly-paid consultant group, mostly Johnny-come-latelies to the library field. And the stamp of approval was given by a firm of market researchers at Griffith University which issued a glossy piece of nonsense called "Navigating the knowledge economy", or, translated into English, turning local libraries into nice little earners. This mob was commissioned by a committee of all state "culture" ministers and the federal

government, then a so-called "Labor" body. Last year they gave us their version of "reinventing the library".

Given that public libraries, on average cost only 50 cents a week per ratepayer, that most people benefit from them, that few if any complain about providing them, in short, given that they ain't broke, why this sudden Australia wide rush to find ways of fixing them? The answer is that they want to fix it *because* it ain't broke. Our libraries, which were built on the basis of the old Mechanics Institutes of which we had some 3000 all over Australia, are truly community based institutions which, particularly over recent years, has become a centre of community culture as well as the well-spring of information.

For the economic rationalists now running both major political parties and all government, local, state and federal, this is the proverbial red flag to the bullies. They proclaim that communities don't work or, in Maggie Thatchers immortal words, that there is "no society". Having proclaimed it, they have to prove it by stealing the people's property and handing it to shysters for exploitation. However, in the case of libraries, they object not only to how they are run, but what they do.

In most cases, librarians are trained professionals who used to work with a maximum of dedication and a minimum of supervision. Politicians and some ex-councillors are now saying that this means they are elitist, arrogant and over-qualified. Guest, the ex-shadow Arts Minister, says he wants the library run like a video shop; a Nunawading ex-council CEO. now a commissioner down the Peninsula, referred to Librarians as "check-out chicks"; Bruce Atkinson, a Liberal Upper House member wants more Mills and Boon in the library.

The one thing they are all agreed on is that the internet should replace access to reference and other non-fiction books. Of course, this is not on. Firstly, the internet is chaotic - in a recent public test, information which took a few minutes to get from the library, took over 5 hours of searching the internet, and then not all could be found. Given that each of the people you now find looking up books in the library would need an individual terminal, and given that, including overheads, each hour per terminal would cost at least \$10, work out the cost to the community for those who do get on. But then, the Kingston report which suggests relocating everything into Southland Shopping Centre, doesn't even pretend that the internet should fill the needs of existing library users - it is to be an "infotainment" centre. Presumably this means, as suggested in the Griffith report, a place where kids don't waste their time with boring books, but play video games in an arcade instead.

Another thing all these suggestions have in common is that, instead of introducing electronic technology as an addition to existing facilities, they demand, as in the Kingston case, destruction of existing facilities as a first step. This is also implicit in the Government's Trojan Horse, or, perhaps more accurately, White Elephant gift of computer installations for libraries. Already depleted library staffs will have to attend these terminals, and funding for the costs of their access to the 'net will come from depleted budgets.

Whenever and wherever dictators come to power, the destruction of libraries and the burning of books are usually a first step. This may be the first time that technology is being used to justify this vandalism.

DIATRIBE 37 - The Disappearance Of Work - Yet Again!

A recent book by Jeremy Rifkin titled "The End of Work" is only one of many published in the last quarter century predicting confidently that, ten years from the publication of each of these prophecies, technology will make short shrift of human labour. Nobody can deny that the ongoing industrial revolution has indeed brought massive changes to our working environment. Chain-saws speeded up tree-felling and now allow a handful of timber-workers to devastate entire forests, agricultural chemicals reduced farm labour while incidentally polluting our waterways, metallurgical developments revolutionised manufacture, and plastics replaced wood and metal in many products. In the last 50 years, electronics have made a similar impact on communications and the tertiary sector such as banking and retailing.

Somehow, this total picture is not what the prophets of worklessness have in mind; they are fixated on one device, the digital computer, and its minor offspring, the industrial robot. Obsession with robots is why the picture most frequently used as the prime example of a modern automatic factory process is that of a cumbersome robotic arm spot-welding car bodies. Never mind the fact that programmed automatic machinery goes back to the beginning of the 19th century.

Meanwhile, in most established areas of human endeavour, perversely, the old methods based on human skills largely persist. Houses are still built by carpenters, bricklayers, tilers, plumbers, electricians and concreters. Buses, trains, trams, ships and even planes need skilled operators. The sweated women in backyards sewing garments use precisely the same machines as their grandmothers when they were similarly exploited during the last depression. Shearers still shear sheep. Thereby, pardon the pun, hangs a tale. Robot sheep-shearing is one of the examples invariably mentioned by the technological futurologists. As far as I recall, the first project on robotic shearing started at the CSIRO in the early '70s. The solution was then said to be \$10 million and 5 years away. 20 years later, Rifkin mentions some robotic sheep shearing project currently going on - it must about

number 4 or 5 - and tells us confidently that all it will take to complete it is 5 years and \$10 million. Mind you, they already have a frame to hold the victim, and jamming the sheep into this currently doesn't take much longer than it would take a human shearer to shear the entire creature; so perhaps we are getting there.

Jokes aside, shearing a sheep by computer guidance is actually more complex than landing people on the moon, given the variability of the wriggly subject. A computer can play chess, because it is a game which obeys simple rules. No such rules apply to a sheep's anatomy or its behaviour. That's where the problem lies; a machine which can win the odd game of chess against Kasparov can't be programmed to cross the road which, according to music-hall folk-lore, can even be done by a chicken.

Why, with all these failed predictions, are popular writers and academics, who would normally be expected to produce statistics to show jobs which have actually gone to computers, mindlessly repeating these phoney assumptions? For a start, these people have had a bit of a shock in recent years. For the first time ever their domains have been invaded by machinery such as word-processors, faxes, and other gadgets which have short-circuited some of the laborious processes they were previously involved in. It is easy for them to jump to the conclusion that work as they have known it is coming to an end, a feeling which has been a common experience for other workers since the start of the industrial revolution three centuries ago; except that these vocal newly-threatened victims of technology insist that work as they have never known it is also disappearing.

Also, let's face it, work is disappearing. From the latest figures, in Victoria work in manufacture has dropped by some 40% over recent years. It isn't going to robots or computers. It is going to other countries where production methods are similar to ours. And cheap labour is only one of many reasons why our livelihoods are being exported. Mainly it is the lure of huge new markets. The ideological driving force behind the wishful thinking which wants to see all workers eliminated is class hatred. Skills are seen as a threat to our class society, and their very existence is vigorously denied, even though 90% or more of all jobs depend on human skills, otherwise they would have been done by machines decades ago. Yet employers still dream of replacing workers by pick-and-place robots though these resemble legless, one-armed, blind, dumb and deaf two-fingered mentally challenged workers who could never find employment in industry.

Unfortunately, our knowledge that human skills are still needed is swamped by a flood of media assertions to the contrary. The downgrading of the value of human skills and the concept of the displacement of workers by the "robot and computer society" are psychological weapons which, only too often, succeed in demoralising workers by hand and brain. Society is robbing them of hope. In all previous societies people identified oppressors which could and would ultimately be overthrown. The effect of the psychological warfare currently conducted against the people is to convince us that the technological changes which deny us our humanity are laws of nature against which it is useless to revolt.

The left, instead of joining in with the chorus of "what will we do once there is no work" should insist that if some people are seen to be unnecessary, it is not workers but bosses; they have been redundant since the start of the industrial revolution.

DIATRIBE 38 - Environmental Refugees (New Scientist - 31 August 1996)

While in the "advanced" countries people have the luxury of debating the impact of environmental degradation, such as the Greenhouse Effect, people in many ex-colonial countries find that, through the action and impact of modern technologies, their very means of existence are being destroyed.

It could be said that this is not caused by technology, but by economic imperialism and neo-colonialism. Of course, the two are linked; but previous colonisers, like the Dutch in the so-called East Indies, exploited natural resources without deliberately destroying the ecology of the occupied countries; whenever famine was inflicted on people such as in India or Ireland, it was often a by-product of the switch to monoculture, not the result of policies where destroying the people's livelihood was the actual predicted and frequently the desired outcome.

A recent summary of the current displacement of people due to deliberately inflicted ecological disasters shows that refugees from these policies now outnumber, by far, refugees from wars and political upheavals. At the moment, it is estimated to be 25 million world-wide; Norman Myers, an ecologist from Oxford University who collated these figures, says that by 2010 that number will double to 50 million, and, with the expected rise in sea levels and disruption of weather patterns due to global warming, the number may rise to 200 million people.

However, this is in the future. What are the current disasters inflicted on humanity? The article from which these facts are culled, starts by explaining how an Iraqi policy of poisoning and draining the wet-lands forming the Qurnah Marsh (the original garden of Eden and home to perhaps 300,000 people before the disaster and populated for some 5000 years) has led to these hundreds of thousands becoming refugees in their own country as well as fleeing abroad. Unfortunately, these refugees are as yet not catered for by any aid programs; indeed, our society treats technology and its effects as a law of nature with which those affected have to learn to cope.

Another environmental scientist, Stuart Leidermann of the University of New Hampshire, is working on models of world-wide displacement of people by man-made disasters.

Leidermann's list of these disasters seems endless. Floods, toxic spills and dump sites, desertification, hydroelectric projects, strip mining, radon and other radiation exposure, logging, soil erosion, agricultural land abuse, disease epidemics, defoliation, land mines and other unwitting or intentional results of the employment of large-scale technology - all these have driven or are driving people from their lands.

The mechanism of the resulting migration is often masked under the heading of the lure of a better life and those affected are referred to as economic migrants. Economic migration is certainly the way illegal Mexican immigration into the US has been depicted; it currently runs at over one million a year. This ignores the reality. The main reason for this flight has been the degradation of land which annually turns a quarter of a million hectares of arable land into wasteland. Haiti is in a similar plight. Deforestation and other environmental degradation have halved agricultural output over a period of 40 years.

In Australia, we are aware of the Murray-Darling basin devastation which has been responsible for the loss of 15% of fertile land and is forcing many people off the land. Our mining companies overseas have been responsible for driving people from devastated rivers, and are party to doing the same here. The loss of 35 million litres per day from our great Artesian Basin in the Roxby mine, together with spills from tailings dams has an incalculable effect. And while we have already lost all but a few percent of our rainforests; this has had little effect on our urban population.

The same can not be said of the forests of the Philippines, Mexico, the Ivory Coast and much of the Amazon which will be denuded within decades with appalling effects on their peoples. During that time, Ethiopia, Nepal and El Salvador will have most of their topsoil blown away or washed away. The devastation is not gradual, but tends to erupt suddenly, particularly as human beings interact and to concentrate on areas still relatively unaffected. Much of this could, in time, be repaired; removing dams restores ecosystems, planting trees restores topsoils, even highly polluted rivers will, in time, heal themselves. This requires assistance, but it isn't forthcoming except in band-aid proportions.

If all this damage were the result of overpopulation, or at least were seen to bring some benefit to locals, these processes could be understood. However, by far the greatest cause of these disasters is industrial capitalism. Capitalism, because the motivation for much of the destruction is naked international financial greed, and industrialism because it is the bulldozer, the chainsaw, chemicals and fertilisers, metals and radioactivity which are the instruments of devastation, instruments which are the outcome of so-called technological advances.

In many parts of the world people are resisting the degradation of their environment and the destruction of their traditional way of life; they don't want to exchange their harmony with nature for the horrors of a city slum. For this resistance they get beaten, tortured and often murdered. Instead of regarding such people as primitive left-overs of a bygone uncivilised age, we should look on them as representing a sustainable reality, a spirit which benefits not only them, but us and the rest of the world. The greedy destroyers of forests and polluters of soil and water represent a future which, as socialists, we must reject and resoundingly defeat.

DIATRIBE 39 - Technology As An Excuse - Downsizing The Community

Generally we think of technology as having impacted on society rather than the other way round. Throughout history, particularly in recent centuries during which more and more effort went into production technology, some people, including Marxists, have seen new societies as having virtually been created by new production techniques; for instance Lenin saw communism as springing from electrification. He saw the development of this technology as coming from nowhere in particular; part of a linear or natural process. Left politics accepted highly mechanistic and technologically determinist ideas about the evolution of human societies. They also blindly accepted the Judaeo-Christian nonsense of humanity being the highest form of creation, and the philosophical baggage that came with it about everything evolving from the simple to the complex; all this notwithstanding the evidence that "simple" single-celled organisms have persisted on earth longer than any others, and that a new simple virus like golden staph could wipe out much of "complex" humanity if we destroy the potency of present-day antibiotics.

However, the development of technology is, like most dynamic processes, a two-way process. Societies, whose way of life is affected in major ways, develop and reinforce power-structures which in turn select and affect the technologies. Never before has this been so obvious. One of the rarely-mentioned purposes of the economic rationalist cult is the way in which it now deliberately tries to stamp out technologies which might have social value, even if only as a by-product. Government sponsored research, other than military, is under fire; the same goes for universities, which are ruthlessly suppressing areas which don't immediately allow private industry to cash in on new developments. All this, despite the obvious inability of learning oriented institutions to work effectively on short-term projects. Part of this push is the deliberate destruction of community, and the deliberate

creation of technologies to do this. The push for home employment - which is impossible, there are few such jobs - home shopping, which you could have done on the phone these last 60-odd years, home entertainment with endless TV channels, are all part of this. To this we add now the vandalising of parks, the increase in the price of theatres and concerts, and the destruction of the old pub culture by gambling. Closure of schools, hospitals has nothing to do with savings; it is part of the bonanza created for the construction mafia and the breaking of the traditional links of communities with these institutions which they originally created and supported through volunteer actions and fund collection. Unfortunately, most people see all these inroads on community as a by-product of economic aims. Yet you don't have to be a genius to see that much of this is uneconomic, as proved by the fact that most of it has to be hidden behind a veil of secrecy.

What has all this got to do with technology? Nothing in reality; but everything in the pictures now being created in the people's minds for the benefit of the power-structure. After all, nothing has really changed in major ways except technology. Yet everywhere we are being told that everything is now different, that everything is being done by computers and robots, that skills are no longer necessary and so on. One of the most telling symptoms is the notion of down-sizing now current. This implies that you can get rid of a large part of the workforce in any enterprise without ill-effects; it also implies that managers who employed these extra people are incompetents; this may well be true, but the reasoning - so-called - is nonsense. If, in any production situation, extra people were employed it was because of varying production requirements where you needed extra people to take up the slack. This is particularly true for service and maintenance situations. It is a lot cheaper to have people on stand-by than to deal with catastrophic situations which arise because no staff is on hand.

How does down-sizing work? One way is by relocating the work where it becomes invisible. By centralising banking enquiries, staff in branches has been reduced; but no-one sees those now doing the job in some out-of-the-way location in one of the capital cities running up big phone bills. Apart from costly customer alienation, no-one can now prove that this is more efficient economically. It certainly works to break up workplace solidarity. Production areas, too, are downsized; in that case, existing workers are expected to put in enormous amounts of nowadays often unpaid overtime. There is increasing use of contractors and consultants. This way, the workforce is reduced, but the costs go up. The whole notion of downsizing depends on a firm belief that efficiency is proportional to the number of people directly employed.

An immediate result of this economically indefensible course of action is a decline in profitability. Recent surveys showed that companies which have downsized are consistently less profitable than those who have invested in workers as well as machinery. I have previously mentioned how few of the savings projected by the use of computers materialised in the '80s. A recent survey found that this is still true, but still pinned - against all evidence - its "hope" on the idea that the computer culture, after 20 years, was young yet. And countless articles by gung-ho computer salesmen and media "analysts" still insist that you can measure the economic health of a country by the number of industrial robots and computers per head.

Does this mean that this pre-occupation with counter-economy will destroy the capitalist system? Far from it! Capitalist stability is not about profits. It is about the acceptance of the system by large numbers of people. And that is best done by destroying community, to make each group of people and ultimately each person individually exploitable. It would be futile to say that this strategy, now enforced against us on every level, isn't working. In fighting for a new society, we need to preserve much of the old, particularly a sense of community and solidarity.

DIATRIBE 40 - Experimenting On Humanity – Part I

When AIDS was first diagnosed, many people felt that it must be a disease which sprang from one of the laboratories of death which, in many countries, particularly in the US and the UK, are working on fiendish biological weapons. It was difficult to see how such a disease could have arisen in the past, before our present stage of medical science, without having become a fatal scourge for most of humanity. After all, with an incubation period of many years, and with symptoms which ranged over many normally minor illnesses, how could ordinary people have recognised it as a sexually transmitted disease or taken steps to minimise its impact.

Besides, the known activities of the world's war laboratories were so horrendous that we wouldn't put anything past them; we also know that they are so careless that to allow such horrors to escape would be quite normal. The immediate reaction of the military and the medical profession was to deny the very possibility of such events, although they could offer no explanation how a disease which was relatively benign in African monkeys could suddenly occur in humans in such virulent strains. The question remained a mystery.

Recently, a researcher discovered that at the time AIDS was transferred to humans, a programme of using monkeys to incubate vaccines for injecting into human to prevent other infections was carried out in Africa. He suggested that this might well have been the mechanism for generating AIDS. There was an outcry by scientists; to be accused of actually causing such a scourge was more than they could bear. Yet, this explanation fits the facts far better than any other which has so far come up. This example shows the hallmarks of other medical

disasters. Careless experiments on humans create an epidemic; due to cover-ups, this epidemic reaches far wider proportions than necessary even though the initial blunder was made.

This was precisely what happened with thalidomide, which created tragedy to mothers of horribly deformed children long after it was diagnosed as the cause of these deformities; and in the case of the Dalkon shield which caused infections in thousands of women making some of them infertile for life and leaving others irretrievably injured.

Add to this the massive damage caused to people by insecticides and weedicides, the millions of cancers caused by nuclear fallout from war-time bombs and nuclear accidents in the old Soviet Union in Chernobyl and Chelyabinsk and in Sellafield in Britain, and the value of modern science and technology look decidedly shaky.

We are also discovering more and more instances of radiation and chemical experiments deliberately carried out on human guinea pigs - not just in German concentration camps - but in the US, in Britain and in Australia, where soldiers were used to test the effectiveness of phosgene gas. New contraceptives are currently being tested on women in the Third World; the list goes on.

We are now facing a new onslaught, as thousands of genetically altered plants, animals and other genetically modified organisms are being released to mingle with our flora and fauna. A typical case is a herbicide resistant soya bean currently introduced into Europe, which environmentalists point out means more herbicide use, genetic pollution and threats to health. The irresponsible attitude of authorities to these plants hinges on the notion of "substantial equivalence" of the engineered plant to the natural one, an artificial concept if ever there was one. After all, the soy bean has been genetically engineered, which means it contains foreign genes, and produces a novel protein. We can't say for sure if it won't produce new food allergies. The tests applied to these plants don't pick up what may be the most critical differences. They wouldn't pick the difference between a free-range and a battery egg, and would not have picked up the problem of feeding sheep protein to cattle, which caused mad cow disease in Britain.

None of this is unimportant. Battery hens, apart from leading a miserable life, are fed antibiotics which create strains of antibiotic resistant bacteria which may attack humans. Large-scale processing of these chickens has led to contamination with salmonella; we had a recent example of this in Australia.

None of this interference with nature is done for reasons of making life better for you and me. The motive is always profit. It wasn't always so. When Louis Pasteur developed small-pox vaccine, he wasn't thinking of billions of francs in profit, like a modern drug company would. Consequently, as a side-effect to what has been inflicted on us by greedy transnationals, people are now losing faith even in the old procedures which have been proved to bring tremendous benefits in the past. For instance, many people are now refusing to have their children immunised, bringing back the spectre of epidemics of measles, diphtheria, polio and whooping cough.

The interference in our lives by genetic technology is yet another area of necessary resistance. How many more fronts can we fight on? There is only one real enemy - the capitalist system, which is at the bottom of the inhuman experimentation to which we are being subjected in the drive for increased profits.

DIATRIBE 41 - Why Cults?

This is not the first time the subject of cults has come up. It may not be new, but currently superstition and belief in the supernatural is reaching new heights or lows, whichever you like to call it. Also on the increase are UFO sightings, X-files nonsense, New Age fantasies and primitive astrology. This at a time when science is offering increasingly detailed explanation for life, the universe and everything. Why are so many people deserting the seemingly rational in favour of the obviously irrational, in a world dominated by science and technology? Why is superstition increasing when there is now less excuse than ever for ignorance - indeed why are people now embracing deliberate ignorance?

There may be no simple answers to these questions, but we can have a good guess or two. People are looking for answers to the problems that beset them, and science is not providing them. This is for at least two good reasons - science hasn't got the answers and isn't asking the right questions. Both of these shortcomings have a common cause - the commercialisation of science and technology. Every scientific magazine these days discusses novelty in terms of the megabucks which will flow from scientific and engineering developments - not any sort of benefit which would come to ordinary humans. This goes for developments in medicine, it goes for new production technologies, it even goes for environmental improvements.

Ordinary mortals are being told that all this flow of cash - half of it never happens - will ultimately benefit them; but even if this brainwash half works, deep down people know better. The promises made by the hucksters have turned out to be hollow. Science, which was to be at the base of the new millennium, is not tackling the major questions because it relies on funding by the rich and powerful. A great deal of the highly publicised work of present-day scientists deals with questions which are literally light-years away from problems that trouble

ordinary humans.

Take, for example, SETI, the search for extra terrestrial intelligence. Millions of dollars have been spent on special equipment to search the heavens for signals sent out by a remote civilisation which apparently has nothing better to do than send powerful transmissions into space. Of course we know that amongst the many millions of stars in our galaxy there are bound to be a huge number with planets like ours, many of which would support creatures capable of inventing microwave technology. If they have done that, it would be because they, too, have destructive wars. Such civilisations could, like ours, last a thousand years at the most and that only after 3 or 4 billion years of evolution. This makes the chance of catching them at the right time about 1 in 4 million.

If they are like us they, too, will be listening rather than transmitting. But even if, by some literally astronomical chance, we find such a neighbour just like us, as little as 50 light-years away, and we could develop a language to communicate instantly, imagine the first dialogue: Us: We need the answer to life, the Universe and everything. After holding our breath for 100 years, back comes the reply: How much can you pay? And what about the even more extensive and expensive search for that elusive and malevolent asteroid which is out there just itching to do to us what its fellow heavenly body did to the dinosaurs 65 million years ago, if we don't shoot it down. Or at least, that's what we are told by the people who are doing this vital piece of research. What they don't stress is that the likelihood of it happening in any-one's lifetime is minute, and the likelihood of being able to do anything about it is zero. Meanwhile, our environmental madresses make our extinction in the near term an absolute certainty.

Other areas of science are just as pointless, as well as insulting to humanity, such as artificial intelligence, which aims at cloning our brains at a time when no-one understands how they work. Worst of all, about one half of the world's scientists are working on means of obliterating whatever human beings are arbitrarily designated as the enemy. Instead of an easier life with less stress and making us masters of the earth, whatever that was supposed to mean, the tune has now changed. We are told that new technology is a law of nature, and we must learn to adapt to it. We are working longer hours, and job security is a thing of the past, all supposedly due to changes in technology. Instead of the promised means of liberation, science and technology have turned into means of enslavement. No wonder many ordinary people have lost whatever faith they might have had in science as a means of solving their problems and, instead, see these disciplines as being the problem. No wonder that religious fundamentalism, voodoo and New Age nonsense attract more followers every day. Is it really surprising that people should go for an old man with a white beard six thousand or so years ago as an explanation for the origin of our cosmos, rather than believing that the vast star-studded spaces surrounding us came from an infinitely small singularity in nothing twenty billion years ago?

And why should people believe in the value of rationality, meaning support for facts arrived at by experiment and reasoning, when the entire country, and indeed most of the developed world, is dominated by the most destructive cult of all, that of so-called economic rationalism? We were promised that technology and science would abolish hunger, disease and poverty. Instead, there is now more hunger, disease and poverty in the world than ever before. Instead of the promised golden age, we have a return to the dark ages. Technology has made this reversion to barbarism possible by putting inconceivable power into the hands of a ruling class which is more and more dominated by criminals, creating a society where reason gets you nowhere.

DIATRIBE 42 - How To Stop The World From Starving

Never before have there been so many starving people in the world; this despite the fact that grain production has actually doubled since the end of World War II. Amongst the reasons for this disparity is increase in meat consumption by the relatively rich - which includes us - and the increase in absolute numbers of those who can afford meat. Meat consumption is vigorously pushed by various agencies and particularly by meat-producing countries like Australia. Depending on what form of meat we are talking about, the equivalent amount of land required to produce a given amount of nutrition is from 4 to 10 times greater than the amount required for nutritionally equivalent cereal crops.

The main reason for world hunger at the moment is unequal distribution, with many countries where people are starving actually producing food for export. This is not novel or peculiar to Third World countries; last century potatoes were exported to Britain from Ireland at the same time as people starved in Ireland or emigrated to the US to escape starvation and in Britain much the same happened through enclosures of common land.

So, currently there would be plenty of food for all if we had a reasonable social system world-wide. But we haven't, so our first priority is to fight for such a system everywhere. But even if we had it and continued to develop technologies of food production along the lines currently pursued by capitalist agriculture, the world will soon run out of food, for the obvious reason of increasing world population.

World population is currently approaching six billion; in my Ned Ludd days, that is to say the early 1800s, it was

only about one tenth of that. The increased need for food over that period was met by increasing the area of land under cultivation and by new farming methods. Without these new methods we would have faced enforced world starvation even now. In recent decades, there has been a total revolution in agriculture, based on bull-dozers and chain-saws for land-clearing, chemicals for fertiliser, pesticides and weedkillers, and new plant varieties. These increases have lulled people into the belief that the technological fix will allow world populations of any size to be fed and supplied with luxuries, no matter how unnecessary or wasteful.

People who cherish these comforting beliefs generally ignore the cost at which the technical revolution in agriculture has been achieved, as well as natural limits to resources which are being reached. Looking at the cost, and starting with chemical pollution, we have the poisoning of our land and waterways, and the loss of soil at an ever-increasing rate. Our very air and upper atmosphere are being damaged to an ever-increasing extent. We are running out of water at a frightening rate, not only for wasteful methods of agriculture, but for industrial processes. For instance, in Australia at Roxby Downs, the mining companies are mining irreplaceable water at an unbelievable rate. Similarly, growing cotton or rice in an arid country like Australia is rank madness. But much of this is now well known - in fact so well known that people tend to forget about it.

The advocates of unlimited technological expansion of food production conveniently - for them - ignore the way in which industrialisation of agriculture, far from expanding food production permanently, actually lays the groundwork for its ultimate reduction. There are plenty of examples. One is the introduction of chemical fertilisers.

Plants absorb nutrients by a complicated process in which their roots are surrounded by organisms which convert the soil chemicals into a form which the plant can absorb. Artificial fertilisers by-pass this process and enter the roots directly. This leads to an initial increase in growth, and to the destruction of the organisms necessary for the conversion. After a short time the yield falls back to the original or less, but the plant is now dependent on the artificial fertiliser; a boon for the chemical companies but not for humanity.

Similarly, the so-called Green Revolution, while increasing yield of rice by introducing new species, also increased dependence on chemicals for growth and for pesticides. The concentration on a single species soon developed special pests which increased the need for chemical agents to attack these pests, because there were no local natural counters.

All the time, for thousands of years, local agriculturalists had been pursuing plant-breeding projects which depended on the variety of species in local areas, species which had developed resistance to local pests and diseases. All the food crops in the world to-day are the outcome of such breeding programs; they are not the result of centralised agricultural technology. Yet such centralised technologies are precisely what to-day's people are looking toward for further increases in food production. This is a horrifying prospect, because both the means employed by agri-business and its ultimate purpose will ultimately result in hunger on an unprecedented scale.

The means used by agricultural research nowadays, regardless whether by private companies, state owned laboratories or universities are genetic engineering, in other words isolating one gene with perceived desirable properties and implanting this into a plant or animal. By definition, maximising the income from such research will mean looking for a means of generating a new species which has wide application, preferably world-wide. Yet this is precisely the wrong way to go about it; what we need is the further development of locally based species, capable of using the nutrients in local soils and resistant to local pests. Also, agri-business, to maximise profits, will swamp - and indeed has done so - the world with single "best" species, preferably patented, thereby in many cases destroying natural diversity. For instance, from literally hundreds of types of apples, we now only grow 3 or 4; from hundreds of potato variants there now are only a handful. This is precisely what caused the uncontrolled spread of the blight in 19th century Ireland.

For "developing" countries a major problem is created by robber organisations such as the International Monetary Fund which insist that cash crops be grown to pay off the debts run up by sundry dictators to buy arms or other toys. It is immoral for rich countries to allow these murderers to run up these debts; it is even more immoral to force people to grow crops like coffee and cocoa instead of growing their and their children's food.

You could argue that decentralised development of local species is too slow to cope with population expansion. This may be true; but at the moment we aren't even trying. In the "quick fix" there lies disaster.

DIATRIBE 43 - Structural Violence

The use of torture against political and personal opponents, as a punishment as well as a means of extracting information is as old as class societies. Unbelievable cruelties have been and are being committed against men, women and children using fiendish means. Indeed, some of the earliest machines invented were instruments of torture. Needless to say, with developing technology, everything from motorised saws to electric cattle-prods has been turned to the use of the torturer. Apart from the perverted use of existing instruments, the manufacture and

sale of specialised devices has been a flourishing international business for decades.

The purpose, indeed the definition of torture is not only to hurt, but to instil extreme fear. Natural forms of pain such as child-birth can be equally painful, but as the sufferer knows it is temporary, she can bear it. Torture relies on the fear of the unknown pain or death which is yet to come; it is as much psychological as physical. Much of this involves physical disfigurement and ineradicable scars on the victim's body.

Modern technology has come up with new forms of torture which don't leave scars or disfigurement. These technologies have been perfected by experiments carried out in scientific cold-blooded ways. For instance, the long conflict in Northern Ireland has allowed the British to experiment with sensory deprivation, unbearable noises and other impacts on the victims' psyche rather than their bodies. Although leaving no physical marks, these methods leave permanent mental scars. Apart from this sort of institutional torture, many power situations involve the inflicting of pain. Women and children are subjected to male violence, young workers are bullied by their older "mates", and subordinate soldiers experience "bastardisation" which is similar to the old violent method of "breaking in" horses, in other words to destroy any remnant of their individuality.

Western societies, in recent centuries, have gone from the use of extreme physical violence as punishment to an absolute abhorrence of it. Australia is a good example of this progression; from flogging prisoners to within an inch of their lives - or indeed, flogging them to death - for minor offences, we now have, in theory, only deprivation of liberty. Of course, physical violence is still administered or tolerated in prison at the warders' discretion (if discretion is the word), but the judges and law-makers profess not to know about it.

Why is deprivation of liberty such a preferred method of punishment, seeing that its cost to the community is vast? For instance, the cost of keeping a robber in jail is some \$50 - 60,000 a year, almost always vastly more than the proceeds of the robbery. I think it is to do with the hypocrisy surrounding our so-called justice system, which in fact is concerned with creating a criminal class which can be locked up again and again to give naive citizens the feeling that they are safe. In reality, apart from unpremeditated acts between people known to each other, most violent crime goes unpunished; in the case of rape, most of it goes unreported.

Behind the sham rejection of physical violence, we now have a whole relatively new way of punishing people, generally called structural violence. It is connected with our way of life, which allows the dominant class to keep the rest of society in a permanent state of fear. This has now become endemic, as the old concept of permanent employment is disappearing, and being replaced with total dependence on the vagaries of capricious despots with far greater control of our lives than all but the most efficient dictators of the past.

At least all these past dictators had some nominal discernible philosophy and citizens could slot themselves into their systems if they were prepared to be compliant; Nazi Germany being an example. The new men of capitalist violence have no such saving graces; indeed, their vagaries, together with their trained lackeys of highly paid morons delight in experimenting on the working population.

Take the notion of down-sizing. Anyone with half a brain would know that you cannot make enterprises work better by sacking a substantial part of the work-force, indeed the most experienced part of the work-force. Yet this has been practised over the last few years. Its gurus, such as Stephen Roach of the USA (where else) invented a whole theory practised world-wide, despite the fact that it led to financial disasters. Later Roach recanted when it became clear that the handful of relatively sane business leaders who refused to follow his teachings were vastly more successful than his disciples.

Years later, downsizing won't lie down, because it is a form of asserting dominance of power over skill which is more important to our bosses than commercial success. What has technology to do with all this? Without the dominance of technological media disseminating the concept of loss of jobs through technical advances, a childish concept like down-sizing could not have succeeded. As it is, even some of the so-called left saw down-sizing as some sort of economic measure.

The ideological nature of this dominance is most clearly shown by the current use of torture to extract "confessions". Widely applied throughout all hierarchical societies throughout the ages whenever the rulers felt exasperated, it reached a new low in the current Iraq war when it was initially used by the U.S. forces and later outsourced to countries which are prepared to do anything for a dollar.

What are these forms of violence doing to us? For hundreds of thousands of years, homo-sapiens lived as hunter-gatherers, coping with drought, flood and apparently mysterious events. However, within this framework there was always a predictable element, and humans could cope; indeed, the coping was a learning experience which empowered us. The vagaries of present-day world-wide ideologues are different. The whole of the system now concentrates on punishing us with the fear of a to-morrow with which we have no way of coping. The result is a permanent depression leading to mental illness, violence and suicide - at best apathy.

Torture and structural violence are the ultimate expression of the true nature of the class struggle. Whatever else our education system and the PR machine of capitalism tries to tell us, our system is neither benign nor just. The best answer to this is to recognise the deliberate violence inflicted on us and not to let the bastards get us down. As we used to say - indeed, it was a slogan written up on factory walls - nil bastardi carborundum. The Latin was terrible, but the sentiment is sound.

DIATRIBE 44 – Carn’ The Clones!

Nothing in recent scientific development has been publicised as much as "Daisy", the cloned sheep. This follows massive literature which not only regarded cloning as a possibility, but a large number of sci-fi novels based on the concept of cloning human beings. What will cloning do? It produces genetically identical organisms; indeed, the existence of identical twins gives a fair idea of how similar such examples of duplication of genetic material can be. What's more, identical twins generally have the same upbringing, so the similarity tends to be enhanced.

Why have clones? Firstly, we have already got them. Walk down the city streets any day and you will be hard put to find discernible individuals. Many years ago, when one of my colleagues had to collect some software from a middle-sized computer company, I told him - though I had never been there - that he would be met by an ornamental secretary in a glass-walled foyer with a large reception desk and two pot-plants, who would call up some person who would be three minutes in coming. He (it would be a man) would be aged about 30-35, and wear a three piece suit. And so on. When my mate came back, he said I had been wrong in one detail; there was only one pot plant. Although the limits of action and behaviour in a capitalist society are theoretically very wide, in actual practice, particularly at this time, people are far more scared of being individuals than ever before. One public radio station I know had a notice up "No religion, politics or sex on air". The notice might still be there. Clearly, diversity was not welcome. You can get all this without cloning! And the political difference between major parties is that the Liberals want to shoot workers while Labor only wants to starve them to death.

So, why do we have sexual selection as opposed to cloning in the first place? What's more, in nature, sexual selection is almost universal, starting with single-celled organisms. The answer lies in the need for diversity not only between species, but within species. It is one of the ways nature has of breeding out unsuitable characteristics, unlike conscious humans who seem to delight in making the same mistake over and over again.

If humans are genetically altered and cloned, this multiplication of the same error would become the order of the day. For, make no mistake, human beings don't have the faintest notion of what's good for them or for society. If given a chance to determine the nature of individuals in society, they would produce only monsters. Currently, with the pre-occupation with robots, which, after all, are one form of cloned device, if parents had a choice they would probably select boys for ability to play the stock exchange and girls to look like underfed fashion models, regardless of whether such creatures could support a future society.

Aldous Huxley described it all in the 1920s in "*Brave New World*". He also understood that to get identical people you need not only identical genes, but identical conditioning, which he provided in the form of subliminal messages delivered during sleep. He also described how in such a society there would be no progress either technical or intellectual, that frustration would reach a level where it constantly required drugs to deaden people's minds, and constant mechanistic entertainment as a form of escape. The difference between Huxley's vision - or nightmare - and what is happening now, is that *BNW* was written as a parody of our society which he saw as tending in this direction, (and how right he was!) while the earnest cloners of to-day see actual virtue in perfecting means of generating same-ness, just as did the leaders in the *Brave New World*. It is all about control and money.

Genetically altered plants and animals can now be patented and generate large incomes for the licensors, who have a vested interest in spreading their creations everywhere. It may be true that if you have a herd of cloned cattle resistant to a specific threat, they will all be more likely to survive that threat. It is equally true that, by the same token, if one dies as the result of some other, different threat all are likely to die. As usual, when people, particularly greedy people, decide to improve on nature, the result, while beneficial to them, is often disastrous for the rest of society and indeed for humanity. This is partly through misuse and misunderstanding, but largely through deliberate ignoring of the obvious. With pressure on the fast buck, the tendency is to ignore those obvious dangers the power-brokers don't wish to know about. For instance, a recent "*Age*" editorial on nuclear power, after repeating the lie that the ALP 1982 Uranium policy was written by environmentalists, goes on to warn of the danger of giving nuclear reactors to Third World countries because they wouldn't know how to deal with the waste. But then, no-one else does, either. And the last two major problems with nuclear power have been in France, with the Super-Phenix breeder reactor which is dangerous even though it has never been used for breeding, and in Japan, where the Monju reactor sprung a serious leak, knowledge of which was kept from the people by a massive cover-up leading to resignation and a suicide.

This cover-up by the *Age* is geared to once again justify the temporary expansion of the Australian uranium industry. And how many cover-ups will there be if we extend the already serious problems with genetic engineering into cloning. Given the vast cost of these experiments, to private investors, who is going to tell the truth about the real threats? The world is full of health problems which need solutions; often they are available but out of reach of most sufferers. We already have too many cloned yuppies and virtual human robots - the time

has come to say "No" to developments carried on only for the aggrandisement and enrichment of powerful corporations.

DIATRIBE 45 - Job Creation - At Last

It pains me to keep on sounding like a prophet of doom; but then to be Ned Ludd means to have a go at unsuitable technology. And as other people are all the time complaining about the jobs going to hi-tech machinery it's great to be able to report that at last technology is responsible for major job creation schemes. I'm not, of course, talking about staffing schools or hospitals or building public housing, which would be too good. I am talking computers. For a start, making and selling personal computers is now a major growth industry, thanks to Bill Gates' intense desire to turn from being the richest man in the US to becoming the world's richest man.

The constant totally unnecessary changes in computer systems create further industries: Schools which teach the use of the new packages, salespeople who sell them, people who write new software to go with these packages - some of it is very awkward and inflexible for the user, so more gets written - and service personnel, because the complexity of modern computers makes them less reliable even if their components are getting more reliable. Like most modern technology, instead of making life easier, the new data technology comes to dominate us.

In a recent issue of the *Age* Computer section, a minor executive in a US management company bewails his horrible fate: He has to listen to his voice-mail first thing in the morning and last thing at night; it replaces his prayers. Then he has his e-mail to go through, and to dial up another lot of voice-mail. Apart from this, he has a desk phone and a cell-phone. As well he carries a pager, has a fax and presumably, although the article doesn't mention it, gets a swag of ordinary mail, nowadays called "snail-mail". Handling all this, he says, takes him 4 hours a day. He is not alone. A survey of US white-collar workers showed that each sends and receives about 180 daily messages by voice-mail, fax, e-mail and pager daily, as well as some 24 old-fashioned phone calls. 84% said they were interrupted by messages of one sort or another at least three times an hour. With all the possible alternatives, people who send messages aren't ever certain as to which form of communication the person they are addressing will look at, if any, so they use more than one to carry the same message.

So you have instant communication instead of snail-mail, except that very likely the recipient won't look at it for days, and there is no way of checking up. Apart from that, in my experience, faxes addressed to people below a certain rank, never get to the person they are addressed to, unless he or she goes to the office to ask for them. Which means you have to ring them to tell them a fax is coming and mail them the original as confirmation. A truly efficient procedure. Of course, in the old inefficient days, when your letter arrived by snail-mail in the morning instead of by fax at midnight the night before, it was marked with the day and hour of arrival and most managements had rules for the maximum delay before replying. Now all is chaos. And every time some new form of communication is invented, managers grab it with glee, and chaos turns into worse chaos.

I am not making this up. The article quotes one Nancy Ozawa, director of strategic planning for the Institute for the Future who says that "Communications tools have not given workers a simpler life. Each new technology leads to inefficiencies. People try to accommodate to the change, but it ends up creating four times the amount of work". And a university professor says "Technology is a double-edged sword....The things we use as enablers are abused and misunderstood and consume our lives and time. They make the stress levels very high". This could well be the motto for this programme.

But, as usual in US managerial society, relief is at hand. A new class of workers have been invented to help besieged top executives. They work in what is called a "mission control", intercepting, sorting and transferring messages from one medium to another and making sure important stuff gets answered. Now some of you might think that this work sounds familiar; in the bad old days it was done by people called secretaries; doesn't sound anywhere near as good as "mission control officer". The one question the article doesn't ask or answer is what on earth all this communication is for. What are all these weighty decisions which have to be taken? What sort of input from the real world do these decision-makers get, if, as one of the high-powered men said, he works 24 hours a day just dealing with his communications traffic?

So there you have it. Useful workers get sacked - they call it downsizing. \$100,000-plus-a year so-called executives with nothing to do except generating useless or counter-productive messages on numerous media are proliferating; all this while our services languish and our production goes to pot. But then, as they say, it all makes work. And it is modern technology which makes it all possible.

DIATRIBE 46 - Experimenting On Humanity – Part II

Knowledge of what's good for us doesn't come easily to humanity or indeed to beasts. Looking at some of the complex food-chains in nature and some of the even more complex life-cycles, it is clear that it must have taken many millions of years of trial and error to develop some of them.

Humans and apes learnt from their experience what was edible, inedible or poisonous in plants or animals. With the impact of simple technology allowing us to modify our environment, humanity, by experiment, found ways of treating previously poisonous plants to make them edible. In the case of cycad nuts, for instance, this was not a simple process, because the poison is slow-acting and there is no obvious connection between the treatment of the fruit which was evolved and the ultimate safety to the persons eating it. We can only marvel at the observational powers of the aborigines who developed these processes over thousands of years.

With more complex technology, chemistry and metallurgy created new substances and environments which had to be explored. The problem there was that the people working these technologies apparently were very poor observers. For instance, in the days of the Roman Empire, thousands of people succumbed to lead-poisoning without there appearing to have been any recognition of what caused the problem.

Next we had a period where man-made chemicals burst on the world in such profusion that it was impossible to determine what the effect on humanity or indeed the planet was going to be. This is the present period we are living in; in the last few years we have discovered that hundreds of substances and processes we once thought safe are poisonous. The list includes organic solvents, various forms of radiation, and chemicals from dioxin to pesticides. To all of this the people pushing these substances could plead ignorance. In many cases such claims were obvious lies. For instance, what sane person could believe, after all we now know about radiation, that you could hold a microwave transmitter called a mobile phone directly against your brain and not create ill-effects? But many of the pleas of ignorance were realistic. For instance, who thought that spray-can propellants would destroy our vital ozone layer?

So, virtually all our recent technology treats the world and its inhabitants as an experimental laboratory. Willy-nilly we are experimental animals. The frightening aspect is that whereas our forebears had open minds which allowed them to put two and two together, as in the case of the cycads, we now have vested interests which tell us, as in the case of the link between cigarette smoking and various diseases, that we can't trust our observations but that we can trust the cigarette merchants. So much for the so-called age of reason!

But now the previously unconscious experiments have taken a sinister turn. When we first heard about the experiments on human prisoners carried out by the Germans in concentration camps and by the Japanese in prisoner-of-war camps, we were horrified at the inhumanity of people who called themselves scientists who devised these horrors.

Since then, we have become blunted to this sort of information. After all, dropping two atom bombs on Japan was nothing but a massive experiment. The bombing of Dresden was an experiment to see if a fire-storm could be artificially generated. It could, and the result was about a quarter of a million dead. In Australia, soldiers were exposed to nuclear blasts and were subjected to poison gas experiments. In the US and Britain, healthy people were injected with plutonium. All this was done by conscious if not conscientious experimenters and inflicted on people young and old without their consent. The feeble excuse was that it was done to enhance so-called national security.

But now, we go a step further. In the mad scramble to extract vast sums for new medicines, people in Third World countries are being deliberately used as experimental animals in testing new drugs. This has been going on for many years in the testing of new contraceptives in the Indian sub-continent and South America, sometimes with appalling side-effects. In one horrifying instance of drug-testing between 1976 and 1978, some 1100 middle-aged Indian women with diagnosed cervical lesions which could have easily been removed were deliberately left untreated to observe the rate at which these cell growths developed into cancer. Sixty-two of these women developed full-blown cancers, and in nine of these the disease spread around the body. Since then the Indian Council of Medical Research has changed the rules for such trials.

Recently, callousness has reached new heights, as multinationals are scouring the world for human laboratory rats. Medical researchers can save huge amounts of time and therefore money by bringing new treatments on the market more quickly, and what better place to do this than in third world countries. In particular, AIDS research can be carried out in sub-Saharan Africa, where the sheer density of AIDS infection makes it ideal for large-scale studies of vaccines and drugs.

In many cases, treatment stops when the study is completed, and control groups are given placebos which raise their hopes; these people never receive treatment because it is considered far too expensive. Peter King, senior medical advisor to Hoffman-La Roche admits that as the effectiveness of AZT is known, a trial with a complete placebo control group is unethical. Yet one of the people in a research group campaigning against these unethical practices says that 1000 babies will be born with HIV because mothers were given placebos instead of AZT.

King of Hoffman-La Roche tells us that it costs over \$500 million to bring a new drug to the market, and that doesn't leave his company with the funds to treat the human rats. People, he says, should never forget - as if we would - that the primary objective of a drug company is to maximise the return to investors. I might add, as a postscript, that one of the owners of Hoffman-LaRoche is listed as amongst the 10 richest people in the world.

Truly, the religion of the almighty dollar knows neither conscience nor pity. To leave health-care to the market is to leave it to mass-murderers.

DIATRIBE 47 - Road Rage

One day, coming by tram to 3CR, as the tram was waiting to turn into Victoria Street, there was shouting between two drivers. I thought they had recognised each other and were exchanging pleasantries. The reverse was true; they were screaming obscenities. A few seconds later, they had got out of their cars and were starting a punch-up in the middle of the busy road. I don't know or care how it ended; all I know was that there had been no collision and that their stoush created a traffic jam which may well have caused a real accident. Most of us have had these experiences, which nowadays are called road rage. Road rage is characterised by an individual's totally disproportionate response to some perceived wrong on the road. Of course, there are lots of other forms of rage; road rage is tied to a particular technology, which aggravates the syndrome. It seems to be caused by a lot of separate factors which come together and which between them define not only the causes of rage but which mirror our society. Let's look at some of them.

Firstly, there is the matter of human physical skill. Nowadays, physical skills are hard to come by. Only a few youngsters play sports, and in our competitive society they are soon discouraged if they turn out to be so-called losers which means the vast majority of the population; instead they follow their so-called sport slumped in front of the telly. Only a few jobs - when you have one - involve physical exercise. Driving is the one and only skill which people are forced to exercise and nearly everybody believes that they are the world's best driver. A competitive mentality is introduced into a chaotic situation which, like many others, becomes even more chaotic unless it is handled cooperatively.

Then there is stress. The only drivers who can cope with the driving task are those for whom it has become automatic and who have internalised the reality that in heavy traffic there is little they can do to influence their trip time - which to a poor driver's mind seems all-important. The driver who curses and swears at some perceived wrong is at a level of stress where not only their skills disappear but where it only takes a slight extra stress to turn them into maniacs. Such people can never judge their own limitations. Driving, in a way, is a marvellous illustration of the miracle of the human brain and human sense organs which at the same time can judge distance, acceleration and braking, estimate the path and speed of other vehicles and amongst all this can make subconscious split-second decisions which are generally right. These abilities are the result of hundreds of millions of years of evolution plus years of practice which familiarise us with a variety of situations in any skill. It doesn't take much to impair such skills. For instance, in a test, London bus drivers with legendary skills in negotiating narrow spaces, after two glasses of rum actually offered to drive their vehicles between poles which were set 10cms closer than the width of the bus. Irrational rage is not a good way to sharpen your senses.

Added to this are the myths which come with private motoring. I remember once pointing out to a friend that after crawling at 15km per hour for 10 km in peak traffic it made virtually no difference whether you went another 10 km on a freeway at 80 km/h or 100 km/h. After all the difference would only be 2 minutes in a trip taking 3/4 hour. He desperately tried to invent a special sort of physics where a fast freeway trip would actually make up for time already lost. This attitude, which is almost universal, explains motorists' love affair with freeways. In another case, someone told me that by taking a particular route they could cut ten minutes off a trip which normally only takes 5 minutes. With such nonsensical preconceptions, it isn't hard to see why people become enraged when reality hits them in the face; while they can argue nonsense against you, they can't do anything against adverse reality.

However, there are even more important causes for rage on the road. Most cars are used most of the time to take people to and from work in peak traffic. Yet when the car is sold, it is sold on top speed, acceleration, cornering and all those other things which really don't matter. The things which count are fuel consumption, reliability, ease of parking, cost of spare parts and initial cost. These are rarely mentioned by motoring writers. They, and endless advertisements, create the impression, that drivers will spend endless fun filled hours racing down empty country roads in a glorious experience of freedom. No wonder the contrast between this sort of expectation and the reality of the real use of the car enrages drivers.

Property has a lot to do with road rage. Driving in a car alone is in itself an anti-social experience. Because the car represents a year's income or more, ownership makes the driver, particularly the male driver, identify with this lump of steel and glass. You would have seen the sticker "You scratcha my car I breaka your face" showing the mixture of xenophobia and adoration of the car which characterises many drivers. And even though most cars on the road are equally ugly, equally impracticable and equally time-consuming in maintenance and in

hours spent working for their purchase and upkeep, most male drivers will spend hours discussing the virtues of their respective vehicles, and explaining to you why they need a four-wheel drive when their car never leaves the bitumen. Even motorbikes, once the most utilitarian of all road vehicles, are now totally gimmick-ridden. They get damaged if they fall over, and one person by themselves can't pick them up. The pleasures we used to know enjoying the freedom of motorbike travel on country roads are closed to present-day riders; all they get out of their bikes is lethal speed.

It all adds up to the way an insane society uses insane technology to stress its members to the breaking point. Road rage is only the tip of an iceberg of human and resources waste, represented by private individual transport.

DIATRIBE 48 - Damning The Dams

I remember seeing, not so many years ago, a poster at an environmental organisation office which suggested that we shouldn't burn coal when all that energy contained in rain and snow falling on high areas could be dammed and available for free.

Unfortunately this superficially attractive notion is severely flawed. For a start, many dams are used to divert rivers to irrigation, not just for electricity generation, with pretty disastrous long-range effects. Our own Snowy Mountains scheme is a case in point; it was supposed to stop water being "wasted" into eastern oceans instead of being used to irrigate crops in the Murray-Darling area. It did all that, but, in the process, destroyed large tracts of land through salination, caused toxic pollution through blue-green algae, and its ill-effects are still continuing. Its electricity contribution is useful, but not a large percentage of the total consumption of the Eastern grid. With the idiocies inherent in current privatisation, its usefulness is further diminished.

In other countries, dams have wrought havoc, by displacing tens of thousands of poor people from their traditional land-holdings, by removing the spawning grounds of fish, and by destroying, as in the case of the Nile in Egypt, the natural farming cycle which for thousands of years has used the annual floods to regenerate the fields. Instead, the silt once deposited on agricultural land now finishes up at the bottom of the artificial lake, reducing the capacity of the reservoir year by year. There are other, major effects which builders of dams can't or don't want to consider. An American oceanographer has put forward a very sound argument that the Aswan dam could trigger a new ice age in the northern hemisphere by reducing the inflow of fresh water into the Mediterranean. And while dams might look as if they would last for as long as the Pyramids did, most of them need major maintenance and their useful life is often only 50 years or so. Earlier this year the Hume dam suddenly started moving and had to be partly drained and repaired to avoid the possibility of a catastrophe which could have wiped out Albury-Wodonga.

When we talk about dams, we often think in terms of huge structures blocking off major valleys. However, dams come in many sizes from the humble pondage storing water for farm use to one of the aforementioned monstrous barriers. World-wide, there are 40,000 large dams, over 15 metres high, and some 800,000 smaller ones. Many of these are approaching the end of their useful lives. Where they are used for electricity generation, there is often a choice between fixing them and removing them. Increasingly, world-wide, communities - where they have a say - now opt for removing them.

In the US, the federal government is in the process of re-licensing 500 dams which have operated for 50 years or more. This is being challenged in many cases by environmentalists who can show that restoring the river is often not only cheaper than rebuilding them (in some cases many times cheaper), but that the income from tourism and especially fishing can be greater than any economic benefit from the dams as generators of energy. Indeed, recently, for the first time in US history, a dam in Vermont was removed for purely environmental reasons; for forty years it had stopped fish from reaching their spawning grounds, but within weeks of the dam's destruction, the fish were back in the upper reaches of the river. I find these reports puzzling, because in Australia many dams have been by-passed by special fish-ladders which are effective for trout and salmon.

In the US there is now a wave of dam-busting activism. Campaigns include some quite major dams; 20% of US dams are in a bad way and destruction would almost always be cheaper than repairs except in the case of very large structures, which may simply be left standing and empty. As in the case of nuclear power stations, the cost of decommissioning was never a factor in the design and construction of a dam.

Of course, Lake Pedder in Tasmania is a special case in point. Its pink Quartz beaches were a world-famous tourist attraction (you couldn't get to them except by small plane). Lake Pedder should never have been submerged; the miserable 180 MW generated was not even required. The only people who needed it were politicians and technocrats from the Tasmanian Hydro-electric Commission.

Investigations in the last couple of years have shown that if the lake were drained it would not take long for the environment to be restored.

Although, in time, a river will find its own equilibrium once a dam has been removed, in the short term the effects on the environment can be serious. The newly established river can carry debris, and silt accumulated behind the dam can cause damage downstream. In this day and age, this sediment can contain all sorts of toxic chemicals such as PCBs, illustrating the complex nature of the impact on the environment modern technology has had in only half a century.

Whatever the outcome, the story of dam-building illustrates a number of aspects of the introduction of modern technology:

- It is not conceived in terms of the people's needs. Indeed, the people's needs are deliberately ignored.
- It is hardly ever considered in terms of its total impact, including cleaning-up and de-commissioning, even where this is known;
- In most cases it is tackled despite deleterious effects being anticipated but whose magnitude planners are unable to predict;
- That so-called socialist countries do no better (the Aswan Dam was built by the Soviet Union). Currently the worst offender is China, although you could hardly call it socialist.
- Whenever some-one tells you that the technology they sell is good for you, first ask how good it is for them.

Common to nearly all current dam-building is the total disregard for the people displaced by these projects with virtually no provision being made for them other than forced re-settlement.

Far from easing the lot of ordinary people, large-scale technology almost invariably is directed to an increase in wealth and power for the already wealthy and powerful; else the capital costs of these projects would not be forthcoming. The often massive protests of the displaced inhabitants, who are mainly farmers, are a further spur to the planners and builders. Protests enable those in power to demonstrate who is boss.

DIATRIBE 49 - How Technology Really Destroys Jobs

I have previously shown all the talk about technology replacing people by machines is only as true today as it has been since the beginning of the industrial revolution. In fact, recent electronic developments have hardly touched the numbers in the blue-collar work-force, because jobs, which could be automated simply, have gone to machines long ago. Most of the disappeared jobs have gone to Third World countries where they are performed in a similar way to how they were carried out here. Jobs which couldn't be automated or exported are still done the same old way. The building trade still needs electricians, brickies, plumbers, tilers etc. The sweated outworkers in the rag-trade are still, 60 years after the 30s depression, using much the same machines as were current then. Nevertheless, there are mechanisms which allow technology to be used to downsize, deskill and eliminate jobs even if there's no direct impact. Most of these are in the service industries where cuts may be made at the expense of the people depending on the service, which disappears along with the people who used to provide it.

One I am familiar with is the public library. When library automation did away with the card system used for membership maintenance, most of us thought it was a great blessing. Why should human beings do boring routine tasks which could be done by a machine in a fraction of the time? Next came the elimination of the card index catalogue. Initially, it was replaced by a tremendously bulky set of computer print-outs; you were always queuing up for a copy, because where there were lots of separate card drawers before there were now only a few copies of the comprehensive print-out. Next came the terminal, which, for those of us who were computer literate, was no big deal. Not so for people with a resistance to computers, who are just as entitled to library service as anybody else, and needed a librarian to guide them.

However, what few of us realised was that the librarian and the card index perform functions which the terminal no longer gives us. The librarians who know their collections could advise you of specific books providing the particular information you were looking for, or could tell you about the latest book of your favourite novelist, or got to know your taste and would point you in a direction which would subtly extend your reading habits.

But the card index went further. It allowed you to browse the collection for ideas just like you would browse the shelves; only you could see all the books in the collections, including those out on loan. With the advent of the computer catalogue all this changed; now you are more or less expected to know which book you want and how to find it. Computer programs are unforgiving; if you misspell the author or title the book isn't there.

However, the electronic devil once let loose in the Library couldn't be stopped. Next came CD-ROM, much cheaper than an encyclopaedia, with an index leading you anywhere except where you wanted to go; and only one person at a time could look at it. I recently looked at a CD-ROM atlas - very impressive. Dial up a country and it would tell you the population, language, major rivers etc. as well as showing you a crude map, crude because that's all the definition you get in a monitor. The electronic atlas had great tricks; it could say a few

words in the local language, and teach you to ask your way to the toilet (coily called a bathroom in their version of English). It was supposed to be a teaching aid - you could have fooled me.

From there we proceed to the internet, which, although great for some people searching for up-to-date information, presents, in a totally chaotic fashion, a mixture of data, entertainment and nonsense; what it doesn't convey is knowledge which you can only get when intelligent authors interact with the data. But hold on - what percentage of people go to a local library for this sort of info anyway? That's where management comes in. Since the early 90s various groups have been beavering away to convince us that the library needs to reinvent itself, and then went on to reinvent it for us. These people, consultants and bureaucrats, are not users of local libraries, as surveys show. Nor do they know how to improve the library. Their documents are written in impenetrable manager-speak, in other words they themselves lack the very communication skills which they claim librarians lack.

As is common with other economic rationalists, their attack on the library is based on shifting the goalposts. Libraries are accused of not being customer focussed, not pulling their weight in raising revenue etc. in other words not doing what they were never set up to do. At the same time they want to rename the library and call it an information centre, although information is only a small part of its function. This in turn enables them to say that it can all be done electronically and so on. Out there in government and the educational bureaucracy are people to whom this nonsense sounds like music in their ears. The one-time undersecretary for local government, Bruce Atkinson, wrote to me claiming that a six-year old can get more information off the Internet in 5 minutes than I could get in an afternoon at the library. His colleague, James Guest, saw no reason why a library should be considered different from a video shop as far as staffing is concerned.

Local Government is now completing this process. By sacking much of the staff, and replacing the rest with school-aged shelvers, they ensure that the librarians work is now restricted to the functions of super-market "check-out chicks". A new generation of library users is growing up to believe that librarianship doesn't exist. Gone are special collections, the collection of local history, genealogy and the other areas modern libraries used to pride themselves on.

This example is duplicated in the banks, in teaching, in technical services; we are being turned into a nation of docile consumers. Technology is doing the job it was designed for: even the mere mention of it is an argument for oppression.

DIATRIBE 50 - Neutral Technology - Are You Joking?

Most people have been led to believe that industrial technology just happened. Apparently according to this "explanation", all of a sudden, in the 17th and 18th century some people in western society developed funny brains which turned them into inventors of machinery. This, in turn, brought about new social conditions which required skilled workers to turn into labourers where they had to be locked up to stop them from savaging the rest of the population. Other inventors cottoned onto the easy money made by the first lot, and invented other things, and so it went on.

All this inventing improved factory output which in turn made life easy for working people who got very keen to work in these new palaces of labour and queued up to get a bit of the action. And this instruction goes on to this day; all we have to do is to make sure that we get into the same act by queuing up too to get a job provided by a benevolent master. Except now it has become clearer that if the queue is too long, you will have to live in conditions of near-starvation, and as for those who refuse to queue up - there are ways of dealing with them.

This last bit is true, but the rest is a fairy tale. People in Europe didn't suddenly get clever and invented things; they had been inventing things all along to make things easier and better for themselves; not only in Europe, but particularly in China and the Middle East. Watermills and windmills have been used wherever there was agriculture for thousands of years, and so have various devices for raising water including the Archimedian screw. However, the application of external sources of power to manufacture had to wait until the 13th century, when it was used for grinding pulp for paper, and various tasks in iron works.

The reasons for production machinery not taking on were social, not technical. The Library at Alexandria contained a working model of a steam engine. The Roman Emperor Vespasian when told about a jig which would replace many labourers, said "Take it away; I have my poor to feed". Even in more recent industrial times, some textile machines were only used as a threat against workers and a means of cutting wages, until wages rose to make their use profitable.

The fact is that technological so-called progress came as the result of industrial society, not the other way round. In order to satisfy a growing market, employers had to concentrate labour in one location. Then, they found it more effective to split tasks between employees, the so-called division of labour. It is doubtful if this, in itself, speeded up production, because the old crafts-people had always done work on batches of work-pieces; what it did was to increase the pace of work to inhuman levels.

When machinery was introduced, speeding production was only one purpose; the major purpose was ideological, to find a way of producing things which would make hierarchical structures necessary. Technology does not determine social relations; technology and social organisation reinforce each other. Attitudes to fellow human beings and to nature in early society mirror the respect these societies had for their heritage and their children's future. The tools developed by these societies also reflected their outlook.

There is no reason to assume that these societies were incapable of producing what is now regarded as modern technological thought and practice. Indeed, they often did. When monasteries required more accurate time-keeping systems, a variety of clocks obsoleted the crude water-clocks. Often these clocks were developed into mechanical complexity to display astronomical data and, at much the same time, ingenious automata for sale to the rich were constructed. Some of the ideas in these toys were later incorporated into production machinery. The failure to produce machine tools indicates a stage in social rather than technical development. Christian religious attitudes were a factor in overcoming resistance to labour-saving innovations; Cistercian monks built near rivers to set up water-wheels and Benedictines supported the developments of clocks. These were, in effect, industrial organisations, which developed and monopolised technical skills, as seen in their buildings and their art. The monastic discipline and environment and to a certain extent even their style of building carried on in the capitalist factory.

The major step, however, was the way in which larger scale production could be rationalised by gathering all the trades necessary to produce a finished product under the one roof; previously, taking the textile trade as an example, the merchants had to hand various parts of the process to part-time outworkers who were just as likely to till their fields rather than work their looms when the weather was fine. As one writer said "One can understand why the thoughts of employers turned to workshops where the men would be brought together to labour under watchful overseers and to machines that would solve the shortage of manpower while curbing the insolence and dishonesty of the men".

There are four main reasons for setting up factories in the textile trade: The merchants wanted to monopolise the total output, they wanted to increase output and minimise costs by forcing workers to work longer hours at increased speed, they wanted to take control of technical innovation so it could be applied solely to capital accumulation, and to organise production so that the role of the capitalist became indispensable. Charles Fourier described the factory as a 'mitigated form of convict prison'. The entire family was absorbed into this inhuman process. All this was only partly dependent on machinery; machines were expensive and labour cheap. This syndrome is still visible in third world countries.

When machines entered the process, they were introduced by entrepreneurs like the technological plagiarist Arkwright, and others like James Watt who cleverly adapted existing technology into new entities which could not be used outside the capitalist framework. These men were often - like Arkwright - fiercely strict employers. Watt said he liked the division of labour because he could isolate the men and stop them from talking to each other.

Now we come to the crunch. Workers fiercely resented the loss of their freedom and many became machine-breakers. One basis of machine breaking was that it could be used to put pressure on employers, such as miners in Northumberland in 1740, and a subconscious resentment of the new capitalist mode of production expressing itself in destroying machines used to implement this imposition. These activities had wide support even from farmers. To change society we need to change our attitude to technology and change both our political and technological consciousness.

DIATRIBE 51 - How Technology Shifts The Goalposts

Last time I looked at the old chicken-and-egg question: Which comes first, social change or technology; and we had to come to the conclusion that although the technological foundations for large-scale commodity production have existed in many parts of the world for thousands of years, it was the invention of capitalism which triggered its actual origin. Where some of the early socialists got it wrong was in believing that capitalism arose automatically from linearly evolving technology. Capitalism evolved through violence done to the actual producers of wealth by cooping them up into factories, by robbing them of the value of their labour and, instead, rewarding them by the hour with mere sustenance and often not even that. This violent process was recognised by the early wage-slaves who sometimes revolted against it by smashing the machinery used to enslave them.

Today, I would like to look at the reverse process. Once entrenched, capitalism did not remain static. Originally it was seen by the capitalist class as a means of impoverishing the workers. There was never any intention that wage-slaves should receive more than the merest subsistence. However, while it was intended that the capitalist class should receive the bulk of the material benefits, very soon the output of goods pouring from the factories required that the working-class become consumers, at least in some technologically advanced countries. As Karl Marx pointed out, one of the many massive contradictions of the system is that while each capitalist would like his workers to be frugal, equally he would like everybody else's to be spendthrift. However, Marx could not have foreseen the impact of what we now call consumerism.

Consumerism does not just mean that we now spend more on everything; it means that specific items are created for sale to the working class which initially are not necessary for survival. Whether by design or not, a whole infrastructure soon develops around what were initially luxuries and they become a necessity of life. The best example of this is the motor-car which now dominates our lives in so many ways that it doesn't need analysing here.

You may argue that the system loses out by giving workers all this property over and beyond their subsistence. It isn't as much as you might think. The sum-total of disposable income (the amount beyond the necessities of life) is a small fraction of the total income of a worker on an average income, although it works out much more for those with no responsibilities. Translating this into actual figures, how many years of work does it take a worker to save a year's wages? or much the same, buy a new car? - which nowadays is a necessity for many.

However, there is an enormous benefit to capitalism in giving a modicum of property to workers. The Communist Manifesto tells the workers of the world to unite because "you have nothing to lose but your chains". By convincing workers that these chains are gold-plated, the same class which at the dawn of capitalism united in common misery and smashed machines nowadays lives their separate lives of misery and regards their fellow victims as their enemy.

What the system has done to us - much worse than impoverishment alone - is to distort our consciousness into believing that property alone is power. While property in our society may accompany power, the power invested in the ruling class by virtue of its property differs from that of the average punter both in quantity and quality.

The manipulators of our society aren't necessarily rich. As we have seen in the eighties, most of the wealth of some of these people represents debts, not property. Like the system itself, their power rests on massive fraud.

However where this wealth exists as the basis of power, it is in such massive quantities that any comparison with a worker's miserable bits and pieces would be ludicrous. And whereas new mechanisms are constantly being invented for ripping the wealth off workers, laws and practices almost make it certain that large-scale wealth increases. Nevertheless, the illusion persists amongst workers - assiduously fostered by the media - that classes don't exist and that, because many ordinary people can have some tiny amount of property and can cheat a few dollars in their tax-returns - there is such a thing as the so-called level playing field.

What has all this to do with technology? It was technology that made these deceptions possible; it is communication technology which spreads the illusion and which allows people to isolate themselves at home. Most of all, it is technology which provides the pointless consumer items which people are now accepting in lieu of a full life with human relationships.

Against this, we are losing what culture we had, brought about by a reasonable working week, by some sort of social stability and by what was once called the dignity of labour.

And to those who like to tell us that we don't have to worry, because the system is in crisis and can't last much longer, we can only say that the system has always found ways to turn its contradictions into advantage for the ruling class. We can't afford to harbour comforting illusions; such illusions are precisely what the advertising industry sells along with the useless products which they insist turn our miserable and culturally deprived lives into the best of all possible worlds.

However, with more people joining the consumer race, our resources are being depleted at an ever increasing pace. The result is that we will have to work harder and harder for less and less.

DIATRIBE 52 - Going Backwards

Contrary to the idea that Adam Smith was a mere advocate of so-called unfettered market forces, he actually insisted that in order to be a progressive force in the economic life of society this society had to keep legal curbs on capitalism's basically anti-social behaviour. Under these constraints, the system not only developed into a powerful mechanism but despite itself produced some benefits for ordinary people in privileged countries. Child mortality dropped, life expectancy increased. For brief periods in history, such as Australia in the 1960s, you could actually believe that the system was benign.

Needless to say, the captains of industry and commerce never accepted the need for constraints even though they were the major beneficiaries. They wanted what they called "laissez faire" capitalism, meaning "let it happen", they said. In actual fact, they used their freedom to form cartels and use other means to restrict competition. In Britain they introduced combination laws with heavy penalties for workers who created unions. However, this period didn't last long; it produced a rebellious working class, as can be seen from the incidence of Luddite machine-smashing. Laws restricting the employment of children and limiting working hours were put forward by well-meaning paternalistic individuals, often aristocrats who were appalled at the disappearance of the feudal system which they regarded as god-given.

The fact that these restrictions were placed on aspects of trade and employment by about 1830, against the

resistance of the growing class of industrialists, shows that there must have been some understanding that unlimited exploitation was not necessarily efficient exploitation. In general, industrialists pooh-poohed Robert Owen's figures which demonstrated that reasonable working hours, schooling for children and certainty of a job resulted in efficiency of production far better than that achieved by slave-driving oppression. Yet, in the backs of their minds there must have been a realisation that it was preferable to deal with unions rather than individuals, and that, as Owens pointed out, long hours led to the spoiling of the raw materials of production which generally cost much more than the labour employed. We should remember that the industrialists of the 19th century were far more hands-on in their approach than the ideologues infesting to-day's boardrooms.

This was the period of the flowering of European technological innovation, which peaked around the turn of the 20th century, and coincided with the shift from pragmatism to scientific development. In short, there was amongst the ruling class a primitive understanding of who and what created their wealth, even if this never figured in their public statements. Economically, this period also allowed almost unlimited expansion of markets. As well, it created powerful socialist ideology from the middle of the 19th century, when the spectre of revolution, as the Communist Manifesto would have it, started to haunt Europe.

In nature, the balance of forces rather than the predominance of one provides stability and development; the rain-forest is the best example. The same is true for human society. However, our current class society, particularly since the disappearance of the alternative structures of non-market societies such as the East Bloc, allows the ideological preconceptions of groups such as the IMF to rule the world. Such groups have no practical experiences to curb their nonsensical ideology-driven assumptions, and have now acquired the means of imposing these ideologies on the entire planet, regardless of the fact that their prescriptions don't work. You can see this in the recent financial crises in Asia. The one economy which did not go into free-fall was Singapore, which has a modicum of regulation. Yet the prescription of the free market ideologues is further deregulation everywhere, a prescription faithfully parroted by little Johnny Howard. It is hard to see how such a prescription can even be contemplated in countries which have no welfare structure and little social legislation, unless the intention is to starve yet more people to death.

Not content with the dominance achieved by multinationals through their economic power, these alternative governments are hell-bent to introduce yet more limits to the restrictions to their lemming-like behaviour. A few years ago we had GATT, and at present MIA (Multi-lateral Investment Agreement), which is intended to be a world-wide imposition of multinational legislative power over national governments. This triumph of unreason has sent technology reeling backwards. Technological innovation is now limited to various minor changes achievable by electronics. While this has enabled the dominance of multinationals to be extended by effectively abolishing national borders to financial manipulation, it diverts capital away from productive enterprise. In the area of commodity production, it has forced concentration on so-called labour-saving techniques which contribute little to productivity and are frequently wasteful of materials (the area where most real savings are possible).

Pragmatically, one might say, the system which makes market-speculators jump out of windows in a crisis is now being assisted by removing the windows to make the process easier. So what? And for Ned Ludd, the process of developing what are basically the wrong technologies should also be gratifying.

Not so. Firstly, the accelerating destruction of the environment robs us of much of the basis for new technology. Also, much of the experience of developing decentralised and local technologies is being lost together with the thinking which searches for such solutions. That's why a whole range of energy-saving technologies, particularly in buildings, now have to be re-invented. Because there are few truly independent thinkers, most environmentally motivated innovators think of how to make savings in current-day practices, not how inappropriate these are in the first place. There is no technological fix for self-imposed limitations on thinking.

DIATRIBE 53 - Technologies Of Co-Operation

One of the intended side-effects of industrial technology is to rob users of their ability to understand as well as maintain the goods which they own and use. Take electrical appliances: How many people have the faintest notion of what goes on beyond that switch on the wall? And their house-full of electrically operated gear becomes utterly useless once that power fails, often leaving them with a rage engendered by their helplessness. Added to this there is often a nameless fear which, as for instance in the case of nuclear power, is fully justified.

I said this was an intended side-effect. At one stage I actually had one of my bosses tell me that he didn't want me to design equipment that could be made or serviced "in any old back-yard". One of the features of Bill Gates' increasingly complicated software for domestic computers is that even highly competent programmers - his own included - find it impossible to work out how it does what it is supposed to do.

This complexity is not a necessary feature of all technology. I am a member of Camp Eureka's Working Collective, a semi-rural site where we decided early on to make our life as easy as possible, but to use

appropriate technology to get there. In particular, we decided that we would do all of it ourselves, from design to completion. As it happens, many trades-people are in our collective, but most of the work is done by willing amateurs. We are not gluttons for punishment. We decided early on that we would use materials that had a maintenance-free life of at least 25 years if possible. We also opted for technology in keeping with the environment, such as the use of wood for cooking and heating. Let me talk about a few of these projects.

Our buildings are of bush-pole construction. We get our poles from the near-by state forest. We are doing it a good turn by removing this timber. The straightest poles come from areas where trees are crowded together and therefore require thinning out. Nevertheless, uprights are made from treated pine cemented directly into the ground, a technology we used long before it was permitted by the building codes.

We have also built in mud-brick, as the soil in the area is very suitable. We find this too labour-intensive and have restricted it to areas which need to be heated in cold weather. We use sawn timber, which comes from the saw-mill next door for purlins and battens as well as palings for walls. The cover layer of palings consists of off-cuts normally burnt by the millers. Windows are bought second-hand and designed into the buildings. Floors are of concrete, which nowadays comes ready mixed. Roofs are of corrugated iron, which used to be the one area where you couldn't achieve more than a few years of maintenance-free life; luckily, with the advent of colour-bond iron, this life is now greatly extended.

With lots of trees on the site, some of which insist on dying or being blown over by high winds, we are not short of fire-wood for stoves, heating and barbecues. We now have electricity in all living areas, but restrict its use in sleeping huts to lighting. Electricity is also used for pumping use-water from the river. We use a rain-water tank for drinking water.

To assist in all of this, we have an old grey Ferguson tractor, with a saw-bench, slasher and the other usual implements. And when we have to dig long trenches, we hire a trench-digger. And, yes, we send out our mail and administer our camp use by using a computer data-base and e-mail.

So how, as a confirmed Luddite, could I justify all this technology? As in all things in life, we are dealing with compromise. The compromise, in our case, is with the blend of work and holiday we want to achieve for our members. A tractor saves an enormous amount of back-breaking work. How long would you take to saw several tons of fire-wood with a cross-cut saw which, using the tractor saw-bench, 3 of us can do in an hour or two? And how would you like to carry all the water we need for our showers, washing and cooking in buckets from the river up a longish track? Incidentally, our tractor is now well over 50 years old and will last another 30. Most of the old grey Fergies sold in Australia are still in use; the pride and joy of farmers who find no difficulty in maintaining them. Last year a Fergie re-union brought out 1000 of them driven long distances by grateful owners. I wonder how long the monstrous over-sized tractors of to-day over-capitalised farms will last.

In a way, Camp Eureka represents a sample of the technology Third World farmers should have at their disposal, instead of being offered TV and motor-cars which in any case they can't afford. Of course we should replace back-breaking and unhealthy labour with machines; of course we need to provide ourselves with adequate clothing and shelter; of course we need technologies to look after the sick. Incidentally, much of to-day's sickness is the direct or indirect outcome of to-day's technology. For instance, much day-after-day back-breaking labour is the result of the change to mono-culture required by factory farming.

However, many of these are precisely the areas where our technologies are going backwards. Next time, we will have a look at the technologies of hunger which, particularly in poor countries, replace the necessary technologies I talked about here, and which are being used to maintain the domination of murderous multinational barbarians.

DIATRIBE 54 - Technologies Of Genocide

As in the past, imperialism is a bloody business. To take over a country's trade you had to send in warships to take over the whole country, in the case of places whose populations were benighted savages, or later, engage in total war in the case of technologically advanced countries.

This was appropriate in the days of national economies, and capitalist growth. However, the nature of capitalism has changed somewhat since the days when Lenin wrote about imperialism. There are still battles about redistribution of markets, but they nowadays take a different form. Half the world's largest economies are now transnational corporations rather than nation states. And although economic fundamentalists like John Howard and Kim Beazley still burble on about economic growth, this exists only because of the meaningless method of calculating the so-called Gross Domestic Product. Would any of our listeners be persuaded that the last 20 years, with their shrinking incomes and downsizing of everything under the sun really represented an annual growth of around 4%? That's what they are trying to tell us.

So, there are only a few mechanisms left which enforce redistribution of political power, which goes with

economic power. One is by means of takeovers and mergers. This was the most common way of generating the present-day vast empires of trade and commerce. Small efficient entrepreneurs would build up enterprises which were later absorbed by the inefficient giants who succeeded because of their monopoly power.

Nowadays the process of building up a small efficient company is so tortuous that mergers and takeovers only occur at the higher levels between companies with capitals of many billions. Significantly, most of these now involve financial institutions rather than commodity producers; the size of these unproductive enterprises gives us a fair idea of where the so-called growth has gone. There is, however, still the matter of goods production. These industries, ranging from primary production to mining and from manufacture to transport and communications. And there are still world populations to be conquered. Most importantly, there is the need to secure resources. Woe to the people who own them for they are doomed.

To-days mechanisms for national enslavement are technology and debt. The so-called debt crisis is a manufactured device. World-wide, third world countries are paying huge interest on debts run up by tin-pot dictators under the guiding hand of the IMF and the World Bank, its finance arm. The level of these payments is determined by the manipulated value of the local currency. We see a perfect example of this currently in Indonesia, where inflation approaching hyper-inflation is making it totally impossible to repay even a fraction of the paper debt run up, ostensibly by the country, but actually largely by private investors, and largely spent on imports from industrialised countries for schemes which are counter-productive to the people. The bulk of local spending is on inappropriate buildings and on the military.

One aspect should be singled out - the desperate attempt to generate a passenger car industry. Although Indonesia is a huge country in terms of population, its transport problems cannot be solved by passenger cars. Cars need roads, and cannot cross water, an important consideration in a country consisting of hundreds of islands. The incipient car industry is, as you might expect, not indigenous but an off-shoot of General Motors - Australia playing its part. Against this, for the first time ever, Indonesia has become a net importer of rice. In exchange for motor-cars for the rich Indonesians are exchanging the people's food, while financial manipulation is bringing starvation to a formerly rich country. Let us never forget that, even under Dutch rule, Indonesians generally had enough to eat and to support their rich culture.

While this is a recent example, the plight of African Countries is even worse. The IMF answer to debt - which they encouraged in the first place - is, of course, replacing self-sufficiency with cash crops, regardless of how unsuitable the soil. As an additional fiendish device, they are encouraging growing the same crop in numerous countries, thereby sending the price spiraling downwards. The current pet IMF crop is soy, little of which is consumed locally. The price has already gone through the floor. But now, as in the case of the so-called Green Revolution, a new technological imposition has made things even worse. Genetic engineering has produced new forms of soy which have been patented, and seeds will have to be imported for cash which they don't have. The change to Round-up resistant crops is intended to allow the use of more Round-up; both the genetically engineered plants and Round-up itself are the property of Monsanto. The inevitable over-use of pesticides will destroy the soil. The turning over of more land to cash-crops will lead to more starvation and the ultimate barrenness of previously fertile tracts. In all this time, despite huge tributes paid to first world banks, the debt will only grow. Yet the total third world debt is only 5% of 1st world lending and could be wiped overnight.

We can see that debt and inappropriate technology are not about money, but about domination. Just as many of your local super-markets, owned by one of two monopolies, are being kept open for 24 hours just to put some tiny franchisee out of business, so world monopolies and their financial conspiracies are out to destroy the last few vestiges of survival technologies in third world countries. Indigenous ownership is under threat everywhere, not just in Australia, and technologies, whether they be mining, agriculture or forest destruction play a leading role in this process of genocide. Imperialism is as murderous as always - numerically more so. Only now, it's hi-tech imperialism. Within a few decades, there will be no world left to save - we best hurry up.

DIATRIBE 55 - Running Cars On Nothing - An Airy Proposal

Every now and then we hear of yet another revolutionary innovation in cars. Remember the orbital engine? What was supposed to be good about it? Firstly it was rotary - fewer moving parts. Nobody explained what's wrong with a moving part. Less NOX pollution, they said - but so has an old side-valve engine and for the same reason: poor combustion which causes high fuel consumption and more unburnt hydrocarbons. When Sarich first advertised his new wonder-engine, he didn't even have a working model. When he sold out to BHP, nasty people said that the deal was based on his having the experience and them having the money; not long after they had the experience and he had the money.

There never was a superior engine. Can you have a better means of pushing a car along? Just depends on what you mean by better. If you talk about greater economy and lower pollution in a petrol engine, we have just about reached the limit with present-day engine management systems. Some people feel that by removing the fuel

from the vehicle they can gain advantage. Hardly! For any amount of energy storage, a petrol engine plus fuel, has a figure of merit, commonly given as top speed multiplied by operating radius, which is ten times higher than electric vehicles. I haven't seen the latest proposal, which apparently is based on storing the energy as compressed air rather than electrical charge; there are a variety of such ideas, the most common and practical one being a flywheel which gives up its energy which is stored before setting out. This is not as simple as it sounds; nevertheless there is a short bus line, a few kilometres long, in a Swiss city which works well that way.

There is also the possibility of what is called an average power vehicle, based on the fact that a small car will travel on level ground at 50 km/h with an energy input of about 1 1/2 KW, the power of a small lawn-mower. So you take this small engine and use it to drive the wheels as well as some energy storage system, and that gives you a bit extra for acceleration and hill climbing. And if you want a car for round the city driving, it's quite OK. Because the engine works flat out all the time, it's efficient and doesn't need complicated engine management. Where can you buy such a car? You can't. Because the bloke who drives himself to work has been told that what he really needs is a six-seater V-8 four-wheel drive. A car, in our society, isn't mainly a means of getting from A to B, and when you make a car like that you can't sell it.

So here is your first snag. The question, particularly for men, isn't really about how to get to work in reasonable time, but how to match the driver's ego and the expectations instilled in them by the car industry, the advertising industry and the media. If you did want to save on cost and pollution, you would use a smaller car and share it with a few fellow slaves. I did it for years and it's not only cheaper but more sociable.

All this doesn't touch the core of the problem. Indeed, this problem didn't exist until a couple of hundred years ago. It started out with separating our productive efforts from the rest of our lives, by locking workers up in factories. As we have previously discussed, this wasn't a "natural" development, but was introduced to give employers more control. Even then, neither the mills nor their workers were centralised into large towns - indeed there were no large towns. Regardless of whether you worked in mine or mill, your house was within walking distance of your work-place. As cities grew and work diversified, there was an ever-increasing average distance between work-place and home. However, most workers could still get to work on foot or by bicycle; certainly I did for years. The real disaster came with the general introduction of the motor-car. Planners started to insist that their suburbs should not contain workplaces other than retail shops and small work-shops. Their suburbs turned into dormitories, even their entertainment became centralised. By building cities that sprawl over vast areas it became impossible to provide adequate public transport - not that there was ever a real attempt to do this. The disaster was exacerbated by building freeways and particularly ring-roads, inviting people to disregard the length of travel to and from work. The disappearance of local work forces people to travel increasing distances; in my last paid job the average time spent in travel to and from work was 1 1/2 hours.

While the supply of materials and services often made decentralisation expensive, nevertheless certain industries always managed to operate in a decentralised environment where people could walk or cycle to work. The towns along the Hume Highway were centres of the textile industry; Maryborough and Echuca had metals industries, flour-milling happened everywhere in the wheat belt and so forth. You will look in vain for objective reasons why this situation came to an end. The reason lies in the concentration of capital. For instance, the administration of ICI was to be where Monash University is now, but the bosses decided that this was too far from the Melbourne Club in Collins Street.

Indeed, there would now be many opportunities to decentralise were it not for the perceived convenience of managers. There are now large establishments for banks and insurance companies which centralise Australia-wide customer enquiries. These are invariably located in capital cities, although they could just as easily be in Colac or Armidale or Burnie, where they would revive flagging cities, and, indeed, where they could hire cheap local labour. However, contrary to many of the Old Left, low costs are not necessarily what the "working" bosses want; they want to live a particular metropolitan lifestyle and they want to maintain the myth that if they didn't grace their workplaces with their occasional presence, the joint would collapse. The problem, therefore, is not how to build yet another car which would not eliminate road trauma and rage - the problem is to reorganise labour into a social framework which reduces travel to a minimum.

DIATRIBE 56 - The Price Of (Not Having) Skills

Some time ago there was a documentary on SBS in which, at great expense in materials and labour, some western engineers tried to re-enact what they thought could have been the way in which Egyptian engineers might have raised an object the size of the great obelisk which weighs some 400 tons, into the vertical position. While the stone-masons of the day left us pictures of how this huge granite column was decorated, there is no illustration of how it was erected. My guess is that this was so because, unlike their would-be 20th century imitators, the workmen of 5000 years ago didn't consider it a big deal.

As a serious attempt to show bronze-age technology the show was a fizzer; as comedy it would have to be rated highly. The leaders of this experiment obviously started from the wrong assumption that the old Egyptians

couldn't do the sort of back-of-envelope calculations which are required to predict the pull on a rope needed to stand up such an object (in their case it only weighed 40 tons) when the rope lies at a particular angle to the object. Actually, you can measure the proportion of the pulling force off a rough sketch. Nor did they consult workmen or historians who may perhaps not know how to stand up an obelisk, but certainly knew how to put up huge sailing ships masts without large cranes. What the leaders of this documentary-film-driven exercise lacked in elementary engineering knowledge, they certainly made up in testosterone as they competed in making shouted decisions all of which were childishly wrong. In the end all the testosterone didn't help - the erection failed miserably. It is not a subject we should joke about.

I am also currently reading a history of engineering which shows how, in the area of mechanical engineering at least, most of the important solutions were found prior to the turn of the 20th century. We could, of course, laugh about the mixture of ignorance and arrogance which leads to the discounting of the skills of past periods. However, the people of Auckland haven't got the luxury of seeing the joke, nor have users of Victoria's privatised electricity distribution system. In Auckland, in 1998, 4 gas or oil-insulated high voltage cables failed simultaneously. Probably, this simultaneous failure was due to lack of maintenance in the oil/gas circulation systems. Having sacked the cable jointers who knew how to mend these cables, there was no way electricity could be restored to Auckland until a new above-ground emergency line was installed. Unfortunately, you can't fix a 100 KV cable by wrapping insulating tape around it; besides, the corporatised entity might not know how to wrap insulating tape.

In Victoria, the privatised network has given rise to a new species of Kamikaze possums who love ending their lives spectacularly on the power-grid. Also, contrary to the past, nowadays long dry periods which accumulate dust on cross-arms are - perversely - followed by rain leading to arc-overs and power-failures. Not only are skills lost through penny-pinching neglect, but in many cases they are deliberately destroyed. Tuesday we had a letter in the *Age* with a bank customer complaining about the frustrations of dealing with her bank now that all enquiries have been centralised into one large building for the whole of Australia.

The decision to do this is based on extremely shaky grounds, or, if you prefer to look at it that way, on total pig-headedness (With apologies to pigs). The basic decision is to deplete staff in the branches and/or to close branches. Also, the assumption is that a centralised place with hundreds of women (they are all women) available to answer phones must be more efficient than to interrupt branch staff to answer queries. The first uncertainty lies in the assumption that all queries will relate to easily accessible data on a central computer. There are lots of cases where this simply doesn't hold. There are also cases of computer break-down. Nobody seems to have considered that the frustrations suffered by customers will lead to longer phone-calls.

Finally, the complex mathematics involved in working out the likelihood of queues exceeding a certain length, have not been considered. This is a specialist subject and it is unlikely that, despite all the computer-power now available, the sort of people we talked about in the obelisk TV-program would have any inkling on how to tackle such a project. Nor could they possibly evaluate the total cost of this change in processing enquiries with its hardware, software and re-organization expenses.

However, even if they could evaluate the relative costs, if they found the old system to be more effective there is no chance of reverting to it. So much had to be changed, and so many people sacked from the system to be replaced elsewhere, that the skills of running the old operation - developed over many decades of running banks - is not likely to be still around. The same goes for the Dahleks now infesting railway stations which seem to have been designed - if that's the word - to inflict maximum discomfort on travellers for maximum cost. If this scheme were abandoned, where would you find the conductors?

Let's go back to the obelisk. In one of my past lives, we had to shift a 5 ton machine which was around 4 m tall. A bit like an obelisk, it had to be laid on its side to get it out the door and stood up again after being transported. The first time it was done by a man and a boy using wooden shear-legs and simple tackle. 10 years later I suggested the same method for a similar job, only to be laughed at by my then boss. The job was done by driving a mobile crane and 4 men 20-odd Km from Richmond to Dandenong. Although getting the machine out of the building and on a low-loader didn't take long, the total time was many man-and-crane hours. So much for modern efficiency.

DIATRIBE 57 - Wharf Efficiency - You'd Have To Be Joking

Since governments of various hues have tried to eliminate unions - which means forever - the catch cry almost invariably has been that giving working people a decent living was too expensive and the country couldn't afford it. Unionism would allow workers to insist on enforcing such a state of affairs and it was therefore abominable. Around the year 1800 unions were outlawed in Britain; ten years later Robert Owen proved that his mill, the largest in the country, was making higher profits because he exploited his workers sensibly rather than unmercifully. The Combination laws were repealed around 1830 ostensibly for humane reasons but more likely because their effect on industry was disastrous.

However, bosses are still at it. Only the language has changed somewhat. Nowadays it is all statistics, and talk about efficiency, productivity and a lot of other undefined and indefinable buzz-words. All this has once again surfaced in the war on the wharves. The bosses would have us believe that it can all be summed up by the number of containers transferred between wharf and ship per crane hour. Even by this simplistic standard, efficiency is more about management than labour. Even an 18th century slave driver would understand that if pick-up and set-down points are set a long way apart transfer times are going to be more; even a stock-broker would see that if cranes are out for long periods for lack of maintenance it is going to affect productivity more than any de-unionisation or incentive scheme. In fact, Patricks' competitors, P & O, have recognised some of this and are raking in the moolah despite (or perhaps because of) employment of union labour.

I am no expert in shipping, but it doesn't take an expert to think of some of the many aspects of wharf costs other than container movements. In fact, there are a number of trades working there, all of whom were, incidentally, sacked by Corrigan's bastardry. In addition, there would be numerous outside contractors. There would be electricity and fuel to pay, tally clerks, you name it. I bet insurance charges alone form a substantial cost. We are told that about half the costs are labour of various sorts; however, half of what costs? From the shippers point of view, there are port charges, costs of containers and their maintenance, you name it. Even then, shipping goods from, say, Melbourne to Singapore costs only one or two percent of the value of the goods; this compares with several percent up and down which can be caused by minor changes in the exchange rate of our currencies.

Let's go back a bit. Not so long ago, our wharves employed four times as many workers as they do now. Does this mean a four-fold increase in efficiency? By no means. To look at overall efficiency, you have to take into account that containerisation has shifted a great deal of what used to be done on the wharves in those great big sheds into places that are far less obvious further out from the waterfront.

This has had some beneficial effects on large shippers who can afford specialised equipment to load their particular forms of cargo into containers. It has had adverse effects on individuals who need to ship personal effects or the odd machine. They have to find someone who assembles container loads; their goods don't move until the container is full. Also, containers are not always the ideal shape for certain types of cargo, so space is poorly utilised. This, in turn, causes increases in the size of containers; you can see these monsters predominating on the wharves. Bigger and heavier containers generally mean heavier axle loads on the semi-trailers shifting them. Road wear goes up with the fourth power of axle load; twice the load means 16 times the wear. You and I, not the shippers, pay for that. Also, these arrangements tend to result in fewer loads sent by rail, which exacerbates the public cost. And so it goes on.

Economists seem to be hooked on the idea that local savings, particularly in labour (what they call micro-economics), add up to macro economics, meaning what benefits you and me. The obvious answer is that macroeconomics often moves in the opposite direction to microeconomics. What results in higher profit to corporations is often detrimental to people. This, after all, is what you would expect; corporations are not in the business of providing public benefits. Most technological advances, so called, aim at micro-economic improvements and their impact on the well-being of people cannot be calculated. Let me give an example:

Where we live a present, the clay soil ensured that we were once surrounded by potteries. These were soon mechanized and oil-fired, later gas-fired. They made everything from earthenware pipes to table china. To-day, all this is supplied by Chinese labour, the goods being shipped thousands of kilometres, having to be packed in crates and containers, unpacked and displayed in shops, advertised and handled innumerable times in all these processes. To buy these goods we have to travel for kilometres.

Perhaps a cup and saucer, made by hand, would take 10 or 15 minutes of labour time, perhaps \$2 at present labour rates (although cash may not enter such a transaction). Out of this, the community would benefit through rates and local employment. If we buy the same article imported from China we lose the material benefit of local production, we have to contribute to an expensive and polluting infra-structure, and our community is disempowered through having lost skills and self-sufficiency. The item we finish up with is a commodity, not an artifact. The person who supplies us is sales oriented and alienated, rather than a member of our community.

There is, in this case as in many others, no way of assessing "efficiency"; we are comparing apples and oranges. Overall, it becomes clear that in this phase of capitalism we are working more and more for less and less, and destroying our environment in the process. And don't let them kid us the wharf war is about efficiency; it's about who is boss.

DIATRIBE 58 - Emulating The Titanic

People's fascination with the Titanic disaster seems never-ending, despite the record of much worse shipwrecks in the eighty-odd years since. Even though there may have been a titanic stuff-up or two in the making of the 300 million dollar film, in the end it all came together to be the highest-grossing epic of all times. Like everything else in life, including politics, every technological exercise has experimental aspects to it. When, however, the

managers of technological projects ignore accumulated knowledge to create disasters, the public's interest is aroused, often drawing the wrong conclusions.

In the case of the Titanic, the accumulation of managerial idiocies reached unbelievable levels. The unwarranted assumption of being "unsinkable" led the managers to scrap half the lifeboats on the grounds that they were unsightly. A commercial decision to take a great circle route through iceberg-infested waters and to travel at maximum speed in a dark night flew in the face of the better knowledge of seafarers. Other contributing factors, such as the failure of a nearby ship to respond to distress signals, may have compounded things, but were coincidental. The Titanic disaster was not primarily caused by an iceberg but by deliberate decisions taken by people with power who should never have been in charge of anything.

Looking down the list of famous disasters, you find the same story repeated over and over again. The Hindenburg airship should have never been allowed into the air with highly inflammable hydrogen in its gas-bags or untested inflammable dope on its skin, but such airships did, at least, perform many uneventful commercial flights. The same does not go for the R 101, one of its British counterparts. Management decided that, because of delays, it should go on its maiden flight to India carrying numerous VIPs without prior testing other than a short trip on reduced power in perfect weather. R101 crashed in France, killing more passengers than died in the Hindenburg. Neville Shute, who worked in the same establishment, tells us that it was known at the time that the ship's fabric had been damaged by using unsuitable solvents on it, and that this was known and hushed up.

Most technological disasters can similarly be traced to incompetent management compounding some initial, often minor, problem. This was the case at Bhopal, where the impact on poor people was much the same as exploding a nuclear weapon; it was the same with Exxon Valdez and other large tankers which ruptured. In some cases where experienced first-world sailors refused to take rusted ships out to sea, the ships were sold to companies sailing under so-called flags of convenience and subsequently disintegrated at sea.

We don't have to look overseas or even interstate for examples of man-made disasters. What about the Westgate Bridge, for example? During the construction of the bridge, the company designing it had a major failure when a similar bridge at Milford Haven in Wales collapsed. In the Melbourne event, a series of miscalculations meant that two half-spans of the bridge didn't fit. Because project had been delayed, instead of replacing the half-span the construction company decided to force it into place, which led to a further problem which they then decided to fix by a manoeuvre which resulted in one shift of fitters walking off. The next shift carried out the crazy project and went down with the bridge.

Similarly, King's Bridge was deliberately made from the wrong but cheaper steel, and its 2cm wide cracks puttied up and painted over. Many of these disasters were not only predictable, but were predicted. I have a 1980 book which described the disaster in detail which 6 years later befell the people in the Ukraine when Chernobyl Nr. 4 power-station destroyed itself after being operated in a region of instability known before the accident.

These incidents are getting worse as skills in the workforce are being downgraded. Take the bridge - if you can call it that - over the Yarkon River in Israel which collapsed under the weight of a crowd of competitors going to a stadium. The average fitter of my acquaintance wouldn't use a structure like that to hang their washing on; yet without subjecting it to any load tests it was tested on the crowd. Apart from the collapse, the water it collapsed into was a poisonous brew of organisms which slowly and painfully killed those who swallowed it.

Recently, the nuclear establishment at Dounreay in Scotland where Australian fuel rods are supposed to be sent for re-processing, had a major failure from which it has not yet recovered (if it ever will). This was not caused by any complex chain of events but simply by an everyday occurrence where a contractor ripped up the power cables feeding the entire plant including its control systems. Sure enough, an emergency plant had been provided, but, would you believe, its supply cables, too, ran through the same duct! It is unlikely that we will ever find out how close Scotland came to a major nuclear disaster. We do know that people living around the supposedly safe Windscale nuclear station have been warned not to handle the radio-active pigeons in the area. In the recent *Westralia* disaster, it was admitted that routine repairs had been contracted out instead of being in skilled hands aboard the ship. Imagine a wartime situation where a ship is hit by enemy fire and hasn't even got the skills on board to allow it to limp back into port.

Do our bosses learn from these disasters? Not a bit of it; they get worse. The first step is always a cover-up. Then follows a process where the management gets exonerated and the workers blamed. Quite often, the known problems are ignored. For instance, a 1974 accident to a DC10 in which 346 people died, was traced to a faulty rear door which blew off, destroying the plane's control systems. This happened 2 years after this fault was first identified, to an aircraft which was still at the factory when the directive for a design change was issued, and indeed the construction records showed it had been modified, which was a lie. When the Ford Corvair burned up people because its fuel tank was dragging on the road, a document came to light which showed that the company knew but had worked out that the compensation would cost less than the necessary recall.

The more complex technology gets, the more we are at the mercy not only of the machines themselves, but of the limited and often evil people who control it.

DIATRIBE 59 - "Normalising" The Disabled

Last February, an article in the Age described yet another hi-tech aid for blind people; this time round it was a device working with the Global Positioning System of satellites which allowed the blind person to set a course to a destination, using an indoor software package and 5 kilos of outdoor machinery (the weight of five one litre cartons of milk, for instance) at an all-up cost of \$10,000, to guide you where you want to go by means of instructions issued through earphones. This machine is the result of collaboration between numerous European universities and private industry. The report, as one would expect, contains one glowing testimony from the blind business centre manager of one of the participating institutions - hardly an impartial sample of the blind community. You may well ask - what's wrong with such a notion?

Years ago, I discussed the idea of a compass giving audible directions with a blind friend of mine, who pointed out that for a blind person, ears are their most vital connection to the world. Deprived of sight, you find yourself interpreting very subtle changes in sound to assess your environment. I know this from work in radio: before starting an interview, you always record a few seconds of silence in the environment where the interview is conducted for later insertion; silence has a quality which varies from place to place. As my friend explained, to ask blind people to wear earphones under such circumstances robs them of their most vital sense-organ. Even asking them to listen for extra sounds emanating from some device is an imposition which will be tolerated only if nothing else suffices. One would think that in situations with rough ground and hazards such as verandah posts etc. the problem of mapping out a general route is not special to the blind; even university lecturers have been known to lose their way in both city and country on sunny, let alone overcast, days.

Of course it would be ridiculous to deny the tremendous help technology has given to people with diseases and disadvantages; glasses, hearing aids and wonderful prostheses of various sorts come to mind. Against this you have to balance the increasing number of people who, due to thoughtlessness on the part of the rest of the population, find life hard due to ordinary weaknesses such as arthritis - door knobs you can't open, taps you can't work and jar lids you can't unscrew. Such problems don't need to exist in the first place. As for special problems, we have a voluntary society of engineers and technicians devoted entirely - and good luck to them - to technical aids for the disabled.

Why, then, am I singling out the computer direction-finding aid for the blind for criticism? Firstly, because it tends to deal with a problem which can be dealt with in another more humane way. Every other day, in any street, you are likely to be asked the way to a variety of places by people with normal sight. Being asked, and being able to help, is a way of communicating humanity as well as information.

If people, blind or sighted, are too shy to ask, the problem is to teach them the social skills to overcome their shyness, not to devise some complex means of avoiding contact with their fellow humans. People with disabilities should not be made to feel that their disability somehow makes them less human.

Also, the expense in developing complex machines means that it will only happen if something is seen as a generic problem with an equally generic solution. The solutions, as in this case, are clearly aimed at making a buck either from the afflicted person or from a support group or government. Of course, there are such generic problems, as in the case of the tens of thousands of people who have lost their limbs to fiendish land-mines. However, most personal disadvantages are highly specific. A good example of what I am talking about are wheel-chairs. There is a market for electric runabouts for people for whom walking any distance is difficult but who are otherwise unimpaired; there are dozens of companies supplying this market - far too many, in fact. For paralyses of various sorts there is no such single solution. For instance, you may have seen Stephen Hawkings machine which is hardly what you may call a wheel chair. I look forward to the day when our finest minds will be working on such individual problems. Some of the simpler solutions have been collected in places like the Independent Living Centre in South Melbourne.

Technical solutions are fine, in other words, if they help those who want and need help. However, in addition to people wishing to help, there is also a present-day aspect which is more worrying. Ours is an age of extreme conformity where some people have not only to wear a tie to fit into their situation, but it has to be a particular type of tie; people go for miles or pay a fortune to get the society-approved advertised pair of sneakers or T-shirt. In this society, more than ever before, people are embarrassed by seeing others with an obvious disability or bodily difference. They find no joy in individuals who have triumphed over their handicap in their own way. For such people, the sight of an armless person manipulating a knife and fork with their feet does not represent a victory over adversity but an unpleasant experience which should be kept out of public view.

For such people, the sight of spina bifida children rolling over the ground to get somewhere immediately raises questions of entrapping them into some less unsightly mechanical contrivance. Don't get me wrong: those who want the contrivance should have access to it. But to make disadvantaged people feel that they have no right of choice over ways of dealing with their disability is part of the repression which comes with the possibility of the technological fix.

For me, the sight of a one-legged person jumping from an 8 metre diving-board at the pool was an ennobling experience, not a source of embarrassment. We should understand that any embarrassment we feel at people who are visibly different is the fault of our conformist conditioning; if we immediately think of plastic surgery or

prostheses or audible signals for the blind without knowing how the affected individuals deal with their difference, we need to consider what society has done to us to make us feel that way. One way or other we are all disadvantaged and this should not be cause for shame.

DIATRIBE 60 - (Dis)Organising The Union Movement And The Left

It is almost 200 years since the Luddites realised that even if the capitalist system appeared at least temporarily invincible, its technology was very vulnerable. This realisation, and the role played by technology in enslaving not only workers but the population at large, has since largely disappeared from the workplace and particularly from the organised union movement. Day after day we find union leaders insisting that they are not Luddites, as if that was the worst accusation one could level against a 21st century citizen.

Mind you, for workers, the temptation to see technology as a liberating force is strong and often justified. Take the waterfront: Until containerisation, even though wharfies were called wharf labourers, stevedoring, its proper name, was a mixture of high skills and hard work. Not only was the amount of goods stored in a hold dependent on experience and understanding, but wharfies had to lump enormous loads using primitive implements. What's more, bosses kept on insisting on bigger bales of wool and bigger sacks of produce. Wharfies retired with damaged backs, and with lung diseases contracted from chemical dust and fumes.

No wonder that the 1950s wharfies' film *Hungry Miles* contained a call for mechanising the wharves. The wharfies had their way. Wharves were mechanised and cargo containerised or handled in bulk instead of bags. As a result three quarters of them faced the sack, the job was deskilled to the point where its rudiments can be learnt in a few hours, and wharfies' hours can be extended to inordinate length because physical exhaustion is no longer a problem.

It is the classical problem. Capitalism sours every technological advance regardless of how necessary and humane it appears at first sight. The purpose of capitalist technology is twofold: to increase profits and to oppress workers. Improvements to the work situation are the result of workers' industrial muscle, not some technological gift from on high. This can be shown, for instance, in the introduction of computer-controlled machine tools in the metal trades. These were due to the need for versatility in an industry which previously went in for high volume mass-production.

Bosses regarded this as manna from heaven. Instead of skilled machinists, in one instance I know of, they employed a slaughterman who took on a shift of "mindless" machine minding in addition to his highly skilled job at the abattoirs. It took years of heavy losses in rejects to get bosses to wake up, as the Japanese had done much earlier, to the fact that running these machines wasn't a matter of no skill but of different skills.

Unfortunately, not only did unions go along with all forms of technological change as inevitable, but they accepted these changes into their own operations. More and more, unions used the methods of their industrial enemies. I was a member of a union group which discussed technological innovation in exactly the same oppressive ways as did employer groups; they also had the same sort of jaunts to overseas conferences and rubbed shoulders with the class enemy at the expense of their members. When the Victorian AMWU built its Victoria Street offices, they had precisely the same lay-out as you would find in commercial enterprises, with the typists in an open plan office, the "pool", and each bureaucrat in his little office with adjacent secretary. Bureaucrats amalgamated unions with no regard for the pointlessness of these exercises, and justified it by saying they could "deliver services more efficiently".

The cohesion between members generated by personal contact and by routines such as the collection of dues was abandoned; in many cases dues collection was actually handed to the bosses. New migrants when charged dues on their payslip naturally assumed that the union was part of the apparatus and wanted to know what they were paying for. Entry of officials became all-important, when, in most cases, these officials shouldn't have been necessary; it should all have been settled by the people on the job. In the '70s, I was a member of a group in the Eastern Suburbs which got as far as putting a log of claims for metal shops in the area without any intervention by the union's head-office. We didn't need lawyers and courts to obfuscate the industrial process.

No wonder, with amalgamations and bureaucratisation, which unions are falling into disrepute. No wonder that the bureaucrat's solution is that of the bosses - we got to sell it harder.

Luckily, the backlash is now setting in. Union members realise that instead of being enslaved by procedures generated by technologies on the job and in the union offices, we need to go back to building on-the-job organisations, we need self-reliant shop-stewards who build shop-floor initiatives. This realisation has recently surfaced in certain union elections and has led to the formation of at least one new union. That, you will say, is what we have always had in successful unions. Precisely! Let the bosses and Bill Gates dream of solitary people working computers in their homes doing whatever you can do there, which isn't much. Work is a social activity, and so is organising work. If Union bosses see their future in terms of attending courts and international conferences, relying on faxes, phones, e-mail and advertising campaigns to avoid seeing and talking to their

members face to face, they should be working for the bosses. But then, perhaps they are doing this already - many do in fact switch into corporate managements with not the slightest difficulty.

Regardless of the sales-talk, our future lies in human contact not in what is now called networking.

DIATRIBE 61 - Contracting With The Devil

If you want a power point installed or a path laid, you will most likely call in a contractor. Along with the physical work, you will expect to get the expertise of how to do the job, as well as knowledge of the appropriate rules and regulations; indeed, if the work is not done in accordance with good practice and legal requirements, you may be able to claim against the contractor.

When it gets more complex, such as contracting out the building of an office tower, things get more complicated. Instead of saying "I want an office tower", you have to supply the contractor with detailed specifications, and that's where the fun starts. Even though around the world there are new office towers going up all the time, no-one has ever been able to lay down specs that aren't ambiguous in some way; in fact the contractors count on this. Large contracting firms have special departments for discovering weaknesses in the specs, which will be claimed as "extras". It is a game played by all; architects don't kick against it, because their fees are a percentage of the costs, and customers don't know any better. Usually these extras amount to more than 10%. No wonder contractors employ every trick in their book - and some that aren't - to discover weaknesses in contracts, because extras are pur profits.

Given this propensity, which is only natural, who would want to hand work over unnecessarily to rapacious contractors? The answer is - nowadays, many governments and private companies. Not only do they hand over building contracts to experienced builders, but, as the *Westralia* disaster, which killed four young Navy personnel due to the fitting of incorrect fuel lines has shown, nowadays authorities contract out work to people whose knowledge of the work to be done is sketchy or non-existent. As well, contracting out destroys in-house expertise, where it exists, and isn't made use of. Apparently, nowadays if something goes wrong on a warship during naval action in mid-Pacific, they expect to stop the battle until after a contractor has been on the scene, has supplied a competitive quote and been authorised to do the job. Funny? Not for the *Westralia* crew.

The *Westralia* enquiry showed up the inevitable problems with contracted-out maintenance. A ship is a complex piece of machinery. Like other such, it presents little in the way of trauma to people trained in its maintenance, who have access to spares and maintenance manuals. However, because it is specialised, it is unlikely that contractors with the required skills will be available. This means that the contract documents must specify in inordinate detail what needs to be done and how it is to be done. Going back to the building industry example, the specification would need to include a manual on how to drive a nail, bound to be inadequate, because nail-driving is a skill learnt by years of practice rather than a theoretical exposition. On the other hand, a general reference to carrying out the work in a "workmanlike manner", which is common in building and appears to have been the only instruction to the people who replaced the *Westralia's* fuel lines, is clearly inadequate. In this case a high degree of engineering expertise was required, as no approved spares were available.

Despite these obvious problems, more and more complex jobs are now being contracted out or sub-contracted. In Victoria, local government is forced by Kennett's laws to contract out not only road and park maintenance, but human services like meals-on-wheels, libraries and home help. This needs a huge amount of specification writing, often by people who lack technical background for this work. Administering such contracts also needs equally informed inspectors to assess the quality of the work. Quite often, cost of these tasks is not estimated into the cost of the contract. Results have ranged from the ludicrous to the disastrous.

The ostensible reason for contracting is always that, as contractors are more efficient, costs for a service will be reduced. This is ideologically driven nonsense. Firstly, why would an outside contractor be more efficient than an employee who may have been doing the job for years? And who is going to pay for the additional overheads and the contractor's profit? There is, indeed, no reason at all why we should take the cost argument seriously. The protagonists of contracting out are singularly unprepared to enter into any discussions on the mechanisms of savings relating to particular areas of the provision of goods and services. Most of them haven't the slightest understanding of the processes involved.

It is no accident that contracting-out is generally a creature of economic rationalism, which in itself is a set of ideological prescriptions and assumptions. Workers are indolent, they say, as well as ignorant. The skill is in the supervision, not in the worker; all workers need is the threat of the sack and they will produce more (regardless of the fact that normally it is the process which sets the speed). All past managements were cissies who didn't know how to use the lash; contracting out will fix that.

Labour is Labour is Labour. Skills are not necessary. Any contractor's labourer can do, with no tuition, what previously it has taken workers years to learn. If there was skill once, it has long ago been replaced by a computer. Computers can do anything; except, unlike the proverbial chicken, they can't cross the road. Any on-

paper savings on in-house labour are considered pure profit, no matter how much it costs to achieve them. Conversely, money spent on consultants, "training" sessions and executive seminars is well spent no matter how outrageous the figure. Remember the \$100 million Fairfax paid to be "advised" by Connell - who had never seen a newspaper office from the inside - on how to destroy the company?

Of course, not all this contracting and consulting is the result of ignorance on the part of top managers. It is a way of maximising their incomes, often at the expense of shareholders; while shedding their management responsibilities. And what has technology to do with this? It is a useful way of explaining why good old-fashioned management and sensible labour relations have to give way to outsourcing and consulting. Wouldn't you, too, do it if it means an extra quarter of a million plus extra on your pay each year?

DIATRIBE 62 - Designing For Disaster

I plead Not Guilty. Just because I said a month ago I was going to talk about technological disasters to-day doesn't mean I am responsible for what happened in Longford two weeks ago. But then, nowadays there seems to be at least one such disaster every month around the world, so the only coincidence is that it happened here. Obviously, technical disasters happened right down the ages; there is plenty of evidence that pyramids collapsed because they were built too steeply, and, as in Zorba the Greek, mechanical contrivances failed either with a bang or a whimper. And, one might say, who cares? Unfortunately, very often these disasters spelt death and injury to people who were disempowered even if they knew better, as in the Longford gas disaster.

There has, however, been some change in the nature of these catastrophes since the advent of the industrial revolution. From the human point of view, the forcing of large numbers of workers into multi-story factories, which was necessitated by the use of a central power source such as a water-wheel or steam engine, was a recipe for disaster. Hundreds of workers were burnt to death in such factories, either because there were insufficient exits or because workers were locked into buildings to stop them from escaping from drudgery. With India and China being drawn into industrial society, such tragedies still happen today, although there are no longer central power-sources. And spectacular disasters, in any case, were minor causes for death and maiming at a time when thousands fell victims to unsafe machinery, poisonous processes and carelessly constructed and operated mines.

To-day when many people are concerned about the horrific toll on the roads, few know that an even larger number fall victim to fatal industrial accidents, let alone the thousands maimed with back injuries, disfigured by burns and scalds, and suffering from asbestosis and, nowadays, radiation induced cancers and other illnesses which can't be quantified. One of the aspects of alienation in our technological society is that people are often more concerned with the often minor discomfort caused to themselves by some technological failure than the tragedy caused to those directly concerned.

In some measure this alienation is due to the contrast between the pretences of infallibility put forward by our so-called scientific industry, and reality. Not only is technology far from infallible, it is getting worse. Early on, particularly during the 19th century, many technical failures were due to insufficient knowledge. Paradoxically, some of the technology which looks on the face of it, dead simple, is in fact amongst the most complex. For instance, mechanical structures usually have to be made eight to sixteen times stronger than calculations demand because calculations cannot predict with any accuracy the complex stresses occurring, for instance, in a simple plate with a few rivets through it, if it is intermittently loaded. Problems of turbulence in flows which happen every time water goes down a plughole have so far defied mathematical analysis.

The failures due to ignorance in the early days were easily identified; for instance, the first Tay Bridge collapse in high winds in the 1870's was almost certainly due to oscillations set up which the designers could not have foreseen in the absence of a wind-tunnel. Nearly a century later the Tacoma Narrows Bridge in the US failed spectacularly, twisting like a skipping rope; it was designed well after wind-tunnels were available. Very few modern disasters are due to technical ignorance; almost invariably it is some organisational stuff-up, lack of communication or managerial incompetence, which can clearly be identified. More often it cannot be identified by outsiders because of the deliberate cover-ups which are generally a feature of such problems.

A US astronaut was once asked what his final thoughts were on take-off. "I keep on thinking" he said "that every part of this craft was supplied by the lowest tenderer". Unfortunately, that isn't the only problem. Let's have a look at our own gas disaster. While we have no accurate knowledge of the event itself, its ramifications were inevitable.

While Vencorp, the successor to the old Gas and Fuel Corporation has - as yet - overall control of our network of gas distribution, the supply is and has been in private hands ever since the Bass Strait field was opened. Hence, just as with Sydney's water, the private facility is represented by some black box on their supply diagrams. It is no doubt covered by some long-forgotten specification. If this aspect were controlled by the engineers in the overall system, they would undoubtedly have proposed at least duplication of the gas treatment plant, at some considerable distance; indeed, they may well have insisted that the back-up plant be of different construction so

that faults discovered in one system would not have been duplicated in the other(s).

I can only assume that computer automation in this plant was an after-thought, because at the time of planning such systems weren't highly advanced. Nevertheless, the idea of placing the nerve centre in a vulnerable position is absurd and was unnecessary; the indications from the monitoring equipment can just as easily be placed some kilometres away. Finally, with a 30-year old system you would need more maintenance personnel, not less; yet according to the union, staff was reduced. So-called experts had to be flown in from overseas because our own had been injured in the blast. Months before, the union had said that the plant was a disaster waiting to happen.

Similarly, a fire disaster in the Channel Tunnel, recently graphically re-enacted on SBS, was predicted before it happened but the predictions weren't acted on because clearly, in the minds of the financial controllers, the likelihood of the disaster happening was not great enough to worry about. As technology gets more complex, it concentrates power in the hands of evil idiots; ultimately our lives are endangered not only by sudden disasters, but by the creeping catastrophe of environmental destruction, as well as the escalation of human alienation.

DIATRIBE 63 - Masking Reality - Election Broadcast Technology

150 years ago, ordinary people in UK, fed up with the way the ruling class dominated the parliamentary as well as the real decision-making process, reasoned if only they, too, could sit in parliament and make laws it would put an end to class domination and usher in the millennium. The Chartists believed universal franchise and payment for elected MPs would put them on an equal footing with their masters; for this belief they had their heads bashed in at demonstrations and had themselves transported to Australia - as had the Luddites before them.

Ultimately they got to elect their paid parliamentarians, although the unelected and hereditary House of Lords continue to this day. However, the millennium didn't dawn. If it had, it probably would have had bugs in it, just like the coming real millennium. The changes which the Chartists and suffragettes achieved merely led to a change in the functions of parliament, with the important decisions being made elsewhere where the ruling class was not encumbered by the parliamentary talk-fest. In time, the payment of elected representatives which was meant to enable them to have a living while temporarily absent from their paid work, became a rort which in effect changed their class adherence and made them come round to the ruling class point of view.

What's all this got to do with technology? The mechanics of elections, once they were entrenched, strengthened the feeling that the system actually worked. Apart from anarchists, who understood the way hierarchies function to a far greater degree, workers were largely content to form themselves into parties which justified their existence by reading into the law-books what had been achieved by extra-parliamentary agitation and industrial action anyway. However, the important decisions, such as conscription for war, were never ever submitted to a ballot. In time, this whole sorry mess came to be known as democracy, although the Greek word stands for the degree of popular participation in decision-making, not for an entrenched system where we abdicate this right in favour of voting for some-one we don't know from a bar of soap once every three years, which allows them to do as they like on any subject under the sun for the next three years.

And while the cynicism of this system is constantly being ridiculed nowadays by all and sundry, and quite rightly so, there is contempt also for those countries in which this system has not been accepted, even those where delegates are carefully chosen by small assemblies of people who have the right of recalling unsatisfactory representatives. In short, the adherents of our system are quite prepared to admit that it stinks, yet go to war against people who haven't got it, just because they haven't got it. However, in recent years this sham has taken a bit of a knock, in Australia at least. People have woken up to what Noam Chomsky has pointed out are the two branches of what he calls the business party, whose main effort is to keep each other in office.

This was particularly clear in the recent election, where, in the Senate, which is the only democratically elected house, about a quarter of Australia's voters showed that the so-called 2-party preferred vote is a fantasy, and that, given a chance, voters would toss the two-party system on the scrap-heap of history, where it belongs. Because of this revulsion, the whole gamut of so-called information technology is employed to concentrate people's minds on the gladiatorial event itself, depicting it as a struggle between two individuals. The "benefits" of broadcast technology allow us to see the two party leaders, made up by cosmetics experts, in full glorious colour during the non-debates where they promise the earth with no reference to what they will do after they are elected. During the election broadcasts, instant display of meaningless graphs gives the viewer a feeling of immediacy; even on radio the gimmick of live crosses to various locations and to commentators who treat the event as a great race makes even people on the left believe in the importance of the event rather than appreciate the shortcomings of the process..

This was unfortunately true even of 3CR's election coverage which had all the technological gimmickry of mainstream media. The only difference was that it sided firmly with the ALP for no better reason than that it was seen as the least worst of the parties in a tacitly accepted two-party set-up. This desire to match the hoo-ha of

the mainstream shows the effectiveness of the technologically propagated myth of a two-party delegated system representing a form of democratic society. This, in the case of 3CR, is a pity; given that the election provides an occasion for analysing the electoral system, and given that there is no value in watching the vagaries of individual polling booths in order to give you a phony sense of involvement, the election would provide an excellent opportunity to get comments from 3CR affiliates as to their views on the performance of various parties. On this count, the lower-house party representing 3CR's collective views would undoubtedly have been the Greens; in the Senate, there were several left parties as well.

However, the main blast for socialists should surely be directed against the system itself, which has perverted the understandable desires of the Chartists for representation by people close to the common man and woman into a hideously corrupt mechanism for further enhancing entrenched wealth and power. We could show how the Lib-Labs and the Democrats are conspiring to further entrench the two-party system by outlawing optional preferences and not seriously supporting proportional representation. This time round, we could have pointed up the way the One Neuron Party was not hounded because they were simplistic and racist - which is true of the majors, too - but because they threatened the cosy two-party system. We could show that while technology makes sure that the medium becomes the message, this process is not natural and we should resist it rather than follow the same road.

DIATRIBE 64 - Biotechnology Creates Hunger And Profits

A vast proportion of research spending in the area of biology currently goes on biotechnology, the technology of modifying genes and inserting them into the make-up of plants and animals and, indeed, creating new organisms and identical copies of old organisms, called clones. One of the costliest current scientific investigations is the plotting of the billions of sequences that make up the human genome.

Mind you, this may well be a waste of time and money. It reminds one of the effort that went into computing 20-figure mathematical tables; when, ultimately, instruments were developed which required such accuracy, for a few dollars you could buy a pocket calculator which would generate these numbers in less time than it takes to look them up in a book. Similarly, ways may well be found to plot areas of the genome relevant to particular investigations rather than mapping the lot, so why the expensive rush?

The answer, as always, is money. Parallel with the gene research, patent laws have been altered to allow the copyrighting of the very stuff of life ahead of any useful applications; The money which is already being made out of this technology warrants the spending of vast amounts in doing work which has no current application.

Conservation-minded people and bio-ethicists have run campaigns against genetically altered organisms on a variety of grounds, nearly all of which make good sense. Mostly they are concerned with the altered organisms having unpredicted and unpredictable effects, or spreading in runaway fashion before they can be properly evaluated. There is also the question of bio-diversity; if one strain of plant or animal is promoted to the exclusion of others, we stand a good chance of losing strains with valuable properties. This has now become such a danger that world-wide gene banks are being established to preserve species diversity.

All these effects are easy to see and some have already happened. I want to raise a few questions which relate to the power-structures which give rise to these new and often destructive techniques.

Firstly, we have to look at what is new. Let's face it - nearly all the organisms humankind has turned to its own use have been genetically altered to perform our purposes better or cheaper. This has been done by crossing desirable strains, using the methods that are used in the process of natural selection. The new strain is then allowed to compete, in the case of crop plants or domestic animals, with other strains, leading to a continuous improvement. Only rarely are the new strains infertile - mules and grafted plants are the exceptions.

The most important aspect of this way of developing new strains is that it is local, uses original strains which carry resistance to the problems occurring in the area, and is done by people who are likely to know what they are doing. Even with locally produced varieties, disaster is often not far away. The Irish potato famine was, in part, caused by planting a single strain of potato which was not resistant to the blight. The potato was not an indigenous plant in the first place. However, genetic engineering is doing deliberately what the blight did by accident. Currently, genetic engineering is touted as the solution to the world's food shortage. This PR is not only handed out to rich countries, but promoted everywhere. Monsanto, the world's biggest producer of genetically modified seeds, launched a campaign amongst African heads of State claiming that biotechnology offered the best hope of achieving sustainable food production.

Recently Hans Herren, the head of the International Centre of Insect Physiology in Nairobi, leading expert on fighting crop diseases, warned that these claims are diverting funds from traditional pest control. In particular, biological controls are no longer being developed. This expert was responsible, ten years ago, for introducing a Paraguayan parasitic wasp into African cassava crops which were being attacked by a South American mealy bug. This pest, at the time, was threatening Africa with famine.

Herren pointed out that to-day he would not get the funds for the research which allowed him to save many thousands from famine. Nowadays the transgenic people would say they could fit a mealy-bug resistant gene into the cassava plant instead. Even if they could succeed in this, they would then charge for the new seeds, taking them out of reach of indigenous African farmers. These seeds would lead to sterile plants which meant that they could not be locally propagated. Herren's previous effective solution didn't cost farmers a cent. That is precisely why it would not be pursued by the much-vaunted "market-forces". Herren points out that instead of treating biotechnology as an additional tool, it has replaced the previous techniques because it is sexier, and, of course, it makes money for transnationals. He says that when he visits agricultural research centres the sections that used to do biological control and plant studies are now derelict, with biotechnology flourishing.

A UK environmentalist pours scorn on the notion that biotechnology will bring sustainability. He says that there may be the odd case where biotechnology is the only way of solving a problem. "There are much simpler solutions to most of the food problems of the developing world". He says that most people go hungry because they are poor, not because they lack technology. He might have added that technology makes some people rich - it doesn't feed people unless they are relatively rich. After all, making the rich richer is the main purpose of capitalist technology.

DIATRIBE 65 - Digitising The ABC Out Of Existence

Most current reception of radio and TV signals is a system whereby changes in electrical levels directly represent sound and pictures (the "signal"). That's why the present system is called "analogue". In digital broadcasting, the signal is turned into a code of "on" and "off" pulses which the receiver translates into the analogue of the original material.

Digital radio (DAB) has advantages for car radios. It eliminates distortion in FM radios as you move through traffic and past buildings. Digital TV (DTV) allows more stations in a given band-space, because it doesn't transmit parts of the picture which don't move. This is called compression. Some DTV standards allow a slightly sharper picture (High Definition Television or HDTV). Ghosting (multiple image) is also reduced. Both DAB and DTV are, under Federal Law, to commence in 2001. All current-format analogue TV is to stop in 2007. DAB has been supported by experimental transmissions in Britain for 3 years, but the first car receivers (as yet there are no others) went on the market in September, 1998, the lowest price being \$A 1600. One report says the DAB acronym is taken to stand for "dead and buried". We need to remind ourselves of the supply of radio-cassettes as original equipment in cars and lately, car CD players.

DTV has been implemented in some countries, but has not taken off. There is little interest in the high definition aspect of DTV (most people don't even tune existing sets for optimum performance) and wide-screen formats are achievable on ordinary sets. The main "advantage" claimed for Australian conditions is the ability to transmit more channels. Community broadcasters like 3CR have unfortunately been sucked in by the hype about digital radio. Don't worry; replacing all Australian radio receivers at prices charged overseas would cost an astronomical amount compared to the current cost of radio. It is most unlikely that commercial interests would permit the reduction of advertising revenue brought about by the imposition of a technology which, if used to replace current technology entirely, would have most car drivers playing cassettes and CDs instead of radio. It appears pointless to build a receiver which can be used on both the old technologies and DAB; the savings over having separate receivers would be tiny, and current DAB receivers are already too large to fit behind a dashboard. The recent debacle of UK DAB has brought a suggestion that Australian DAB will be deferred by one year - as if one year would bring any change in the current position.

Switching to DTV entirely would cost, according to trade estimates (see appendix), around \$19 billion - most of it spent on overseas equipment and receivers, none of which would be made in Australia. Who would want DTV? Not general viewers and listeners, who are more concerned with content than delivery. Not the TV exhibition trade, who are uncertain as to what splitting up the audience between more channels would do to programming costs and advertising revenue. Very likely, the sort of techno-freaks who queued up at midnight to pay for a newly-released copy of Bill Gates' Windows 95 might also be waiting for DTV with bated breath and bulging wallet.

Certainly, the sellers of technology, already salivating in anticipation at \$6000 projected cheapest cost for a DTV receiver, are dead keen on the new technology. What's more, like all digital technology, we can expect an expensive "upgrade" every couple of years. Despite this, ABC management has embraced digitisation, both DAB and DTV, with alacrity and a publicity fanfare, reminiscent of their disastrous \$100 million foray into Pay-TV. The Federal Government, while slashing ABC funds, has promised a substantial contribution towards ABC digitisation, presumably to get the technology off the ground in the face of hostile commercial reception.

ABC MD Brian Johns has likened DTV to the introduction of colour, and speaks of "meeting the needs of the 21st century", without giving any details. An ABC communication mentions the "tyranny of the single pipe" as

"the" problem for the ABC. ABC managements are already putting money aside from operating budgets towards digital conversion.

The ABC has real problems. All round Australia ABC listeners and viewers are up in arms about the cutting down on ABC radio and TV. To be told by ABC management that what we need is more TV channels when the present channel is occupied by re-runs, when current affairs, once the pride of ABC programming is taken over by imports, when even ABC science TV is filled with a hyped-up over-dubbed US concoction, is an insult to ABC supporters. Finally, to find that the ABC is flogging off its TV production facilities at a time when at least one commercial channel is upgrading theirs gives us an insight into ABC priorities; it is not a pretty insight.

As usual, there is a widespread feeling that the advent of these expensive and unnecessary changes is inevitable. This is linked to the erroneous belief that anything that's new must have something going for it. It has, but not for us. Think of the experiences we have had in other areas such as banking, where the introduction of technology is being used as an excuse to cut down on many services we need and want, and making others more expensive. There is nothing inevitable about digital broadcast technology except the commercial imperatives of those flogging it.

Few people, including commercial operators, know what DTV is supposedly good for. At an ultimate cost of nearly 40 times the total annual ABC budget, spent almost entirely overseas, the very thought of flirting with its introduction seems obscene.

It's up to us to expose the ABC managerial policy for what it is - a crude attempt to use technological arguments to excuse their policy of going along with government strategy of destroying the ABC. It's up to us not to get sucked into the hype of "better radio" or "better TV". What is important to the media is the content, not the means of delivery.

As usual, the government, driven by commercial interests, is pushing hard for the precipitate introduction of digital broadcasting. It is currently running a "consultation process" which gives us one month, until the end of January to make submissions, presumably only relating to details of what is a fait accompli. If you get a chance, write a letter to the Australian Broadcasting Authority protesting against the imposition of tremendously costly and unnecessary changes.

DIATRIBE 66 - How To Plan For Disaster - The International Space Station

Of course, there are real accidents in technology. But they are few and far between; in the range between the totally accidental and the easily predictable there is a huge choice. I use the word choice deliberately. Most of the time, it is up to the controllers of the task in hand to make this choice. That means, more often than not, a trade-off between cost and security.

The best example of this currently is the Longford disaster, where the evidence shows that unlike Murphy's Law which states that what can go wrong will go wrong, here we have a case where what can be done wrong was done wrong by management. There is little point in listing what has come up so far in the enquiry; every sitting day new evidence emerges of lack of training, neglect of maintenance, even basic understanding by operators of how the plant functions (when it functions). There was an element of uncertainty, but it was small indeed. Even the slightest knowledge of engineering would tell you that low temperature brittle-ness is a recipe for disaster - it certainly was in the case of King's bridge where even the moderately low temperature of a Melbourne winter morning was enough to spell disaster through brittle fracture.

Certainly, the operators of the rubber mills in the factory where I was working were fully aware that on a cold morning the rolls of the mill had to be pre-warmed with warm water to stop them from cracking under load. Such cracking is not only costly, but can lead to very serious injury. Nobody ever queried the time lost by this warm-up process; it was lots cheaper than replacing mill rolls. Nobody questioned the time taken in instructing operators and supervisors. Although there may have been some idiot in charge of a large rubber plant who was ignorant enough not to understand the problem, they would not have been in a position to override the better knowledge on the shop floor. Nowadays, I could well imagine that such knowledge may be disregarded or not even exist in the first place. In fact, the frequent breakdowns in our electricity supply are certainly due to such a mixture of penny-pinching and gross ignorance.

However, even these idiocies have an element of accident about them. To-day, however, I am talking about projects in which failure is a certainty. Perhaps the most outstanding is the current monstrously expensive international space station. No fewer than 100 space missions will be required to transport the components of this massive project into position for assembly by space-walking astronauts. There is a huge problem with the logistics required to carry this through. Currently, on average one in every 20 launches fails. This means that in the course of the erection of this monster, we can expect 5 failures involving the loss of the vital component the rocket is carrying. In most cases, replacing it will take a minimum of a year.

Nowhere in the planning is there any allowance for this; it is just tacitly assumed that this time round there won't

be any failures when in fact around 5 years are likely to have to be added to the completion time. To admit this would probably mean that funding would not have been forthcoming. The cost of this project is around \$US20 billion. Few people can suggest what the purpose of this station is going to be - if it is ever completed. Given the number of launches involved, a large number of individual unmanned missions could have been financed for the same money; even then, it is hard to see what could be achieved by that many experiments in zero gravity. Of course, like the Grand Prix, the element of danger for the participants makes for excellent Buck Rogers or Star trek type TV and that's the sort of 21st century circus the citizens of the US are apparently craving. Of course, the military would be heavily involved, and no-one ever dares to ask them why they want to play with their peculiar toys. So the project grinds on, largely because no-one has the guts to try and stop it. I wonder what they are going to use as an excuse when the first launch has had to be aborted.

An even worse case of planned disaster is the millennium bug. The programming which led to it was explicable in the '70s when memory space was expensive and storing a couple of digits less in each record of a large database could represent a savings. Incidentally, it didn't require any extra typing because the computer can be made to invent the extra digits. It was pure laziness which led programmers to leave this error in the machines as the millennium approached. Now they are so scared of the consequences that some of the people around Silicon Valley are establishing camps in the Californian hills to await the terrors of midnight of December 31, 1999. Not that there is any reason to worry except for certain programs involving commercial transactions such as banking and insurance. Most people connected with programming can't see what the panic is about; after all there are always programming bugs and so far the sky hasn't fallen in when they affect the running of computers.

The mixture of commercial ignorance and essential services such as gas, water and electricity, however, is something we must worry about. Modern cities are so vulnerable that the failure of any of these can have catastrophic effects. Contrary to popular belief, real Lemmings do not commit mass suicide by jumping from cliffs. On the other hand, real human beings are quite prepared to surround themselves with a lethal urban environment and then leave the control of this environment in the hands of people who profit from putting entire populations at risk. Where ignorance is bliss - get away from it as quickly as you can!

Note (early 2006). Both these predictions, about the ISS and the Millennium bug, came true with a vengeance. Currently the international space station is in limbo, because, as pointed out in the article, no long - term experiments requiring a zero gravity environment has any urgency. Of course the vast cost of the Iraq war has a lot to do with the hold-up of the ISS; but much of the delay has to do with the unserviceability of the Space Shuttle fleet which has suffered the predicted and predictable problems. The desperate attempt to replace the Russian space station was clearly no more than a desperate attempt to cover up for the embarrassment caused by having to use not just Russian but *Soviet* technology to construct the ISS. This note was added during editing because there was space for it.

DIATRIBE 67 - Technological Change As An Ideological Excuse

Two Sundays ago, Terry Lane interviewed Lindsay Tanner, the Federal Member for Melbourne, on the contents of his latest book which, apparently, proposes the need for so-called new directions for the ALP. So novel are these departures that Terry Lane was constrained to constantly remind Tanner that what he was proposing was almost identical with the policies of Peter Costello, the Liberal Party's Federal Treasurer. Mind you, Lindsay has been in the habit of giving good advice to lefties from way back; I remember some 15 years back when he wanted to generate a revival of the then faltering remnants of the Communist Party by advising them to get closer to the massive protest movements of the time, as long as they - he advised - didn't go along with the feminists' endless and tiresome stress on accessible abortion and the environmentalists' outdated concern with uranium mining. Now that he has his parliamentary seat, it appears that while he still wants to make the policies of his party - such as they are - respectable by aligning them even further with those of his (non)competitors in the Liberal Party, he has shifted his interests into the economic areas which are currently fashionable. This, of course, includes the so-called need for a balanced budget and so on. Globalisation he regards as a necessary act of God.

Why do I bore you with the predictable views of a political nonentity? Because, unlike previous enlightened views which correctly examined the present economic disasters in world politics in the light of corporate machinations, Tanner has a far simpler explanation. It's all due to changing technology. And technological change, as we all know, is not only inevitable, but will ultimately work for us if we only go along with it. Of course, even this view is not new. It is the prevailing mainstream explanation not only for global change, but for almost everything the ruling class wants to inflict on us. As in other fields, the protagonists of the standard view are short on detailed explanations as to why this particular change to a global economy is caused by technological change, except muttering darkly about the internet, the speed of communications and so on.

These arguments - if you can call them that - won't wash. For a start, the present spate of globalisation, such as

that in the car industry, predates the spurt in global communications. The concept of the "World Car" was around about 20 years ago. Communication by telephone, telex and mail was quite adequate to run decentralised plants decades ago. In the US, the head-offices of large enterprises were often located hundreds of kilometres from their widely dispersed manufacturing plants. Globalisation is the outcome of policies designed to minimise regulation of transnationals by either labour organisations or governments.

Similarly, the notion that the processes producing goods are now entirely automated is a furphy. This is clear when you take note of their parallel argument that Australian labour costs have to be reduced "because we are in competition with Third-World countries". If there were no labour, its cost would not be an issue. Strangely, while we are told to modernise our view on social (or anti-social) developments, the oppressive outlook on things like poverty and unemployment apparently needs no such development. Indeed, ruling-class philosophy as expressed 200 years ago can hardly be distinguished from that currently coming from the mouths of economic rationalists of Australia's major parties. Here are some samples:

Towards the end of the 18th century, people like Burke, Malthus and Paine asked why large sections of the able-bodied but unemployed classes had come to believe they had a right to claim parish funds (the then current equivalent of the dole)...What was the return for all that spending... Jeremy Bentham had the answer (eat your heart out, Peter Reith). His system of managing paupers (the then current term for those unable to find work) would be to lock them up in privately run work-houses. Here they would be held under constant supervision and unremitting discipline and made to work. Profits would be kept as high as possible by coupling economies of diet, dress and lodgings with long working hours. The conditions should be worse than any outside. As Thomas Carlyle said "*If paupers are made miserable they will decline in multitude. It is a secret known to all rat-catcher.*" Sounds familiar, doesn't it? So, while the return to eighteenth century conditions and philosophy is apparently good enough in the area of welfare, we now need to invent new reasons and new language for the same old greed and class ideology which causes these conditions, according to Tanner and his ilk. Certainly we shouldn't even think of getting rid of machines which bring about enslavement and misery, like the old Luddites did, nor should we expose the machinations of international conspiracies.

150 years ago, Marx and Engels suggested that the ruling ideology in any society is the ideology of the ruling class. Unfortunately, they failed to flesh out this statement with examples showing the mechanisms which achieve this. Even if they had done that, their examples might now be out of date. Also, the examples might deserve a book which would have to cover everything from the media to the education system. Technological change would have to be seen to play a large part in people accepting ruling-class policies which enslave them. I would suggest that one insight should be that the level of alienation of society is shown by the uncritical acceptance of new technology. Australians are champions at that, perhaps as a result of the affluence of the '60s which turned us into consumers. Ask not for whom the bell tolls. In talking about alienation, we are talking about ourselves. Consider how often, nowadays, we are talking dollars when we should be talking humanity. Of course, primitive hangers-on like Lindsay Tanner are bound to expound the current ideology, but who of us can say that our psyche is not affected by the same disease?

DIATRIBE 68 - The Courage Of Technology - Some Thoughts For Anzac Day

Chivalry and courage used to be words forever on the lips of those running wars and profiting from them. It was understood - even if generally not true – that honourable soldiers gave the enemy a fighting chance. It was also assumed that personal skill and courage of the common soldier was important in the long run. This myth was maintained even at a time when first the longbow and then artillery no longer allowed the enemies to see each other. It became acceptable to build weapons which killed at long range and hand-to-hand fighting became the exception in warfare.

Despite this reality, the myth of personal courage persisted. Already in Napoleon's time fragmentation grenades, called grapeshot, mowed people down indiscriminately on what was still called a battle field. Yet it remained fashionable to depict these battles in paintings as consisting largely of close combat and lots of horses, with perhaps a few harmless-looking white cloudlets indicating the explosion of an impersonal fragmentation shell, which probably killed and maimed far more people than the entire impressive melee on the ground. Mass slaughter really came of age in World War One when generals on both sides tacitly admitted that war was no longer about the gaining of ground, but about the extermination of people, soldiers and civilians alike, in a war of attrition in which the lives of individuals were snuffed out by the hundreds of thousands. And while rape, murder and pillage of conquered civilians were always features of wars – remember what happened to the enemies of Israel which were, according to the triumphant crowing of the Bible, "smitten" by their bloodthirsty god – it remained for the 20th century to create wars which are specifically directed against civilians.

What is even more horrifying, the US, which specialises in depersonalised warfare, prides itself on conducting wars against civilians, killing and maiming men, women and children using methods which have long ago been outlawed in the slaughter of animals. While the German war machine first promoted the idea of the

“Untermensch”, the sub-human, they did not admit to the gross violations of human rights which they routinely inflicted on Jews, Poles, Gypsies and prisoners of war from the Soviet Union. This hypocrisy was dropped by the US in the Vietnam War, with its unforgettable video footage of burning houses and burning children, images which were intended to get the US public to become used to human suffering, as long as it was suffering by people other than the viewers. We were also fed new concepts, such as that of the neutron bomb, which would kill all life under conditions of indescribable suffering (the suffering was not mentioned) but preserve the all-important physical assets. From there, we got the real thing, a doctrine which states that the US must fight wars only against “opponents” who are incomparably weaker than the US technological might; from there we have such wars as the Panama slaughter, where thousands were killed by tanks rolling down the streets firing shells indiscriminately through the paper-thin walls of houses; we graduated to the first Gulf War where US butchers fitted the treads of their tanks into the trenches containing Iraqi troops, crushing thousands like a senseless child would crush lines of ants.

Together with such attitudes, we found new terminology such as the “pigeon-shoot” and the “collateral damage”. These were attempts to demean the “enemy” when in fact it merely exposes the barbarity of the perpetrators. What is the purpose of this recital? Firstly, it is to remind us that while war is always brutal, the brutality escalates with the technology. But the technology does more: in order to justify the brutality, men rise to ever higher levels of alienation. The generals who were in charge of the carnage of World War I had to lose all trace of humanity when they commanded their troops to go over the top to near-certain death and dismemberment or to emerge as screaming wrecks with their minds destroyed forever.

Not only generals are turned into monsters: I remember the German airman in WWII whose wallet contained pictures of his loveable family as well as a letter in which he described the pretty patterns made on the ground by refugees on the roads, when he machine-gunned them. He simply loved doing it. Air Marshall Harris – “Bomber” Harris they called him – had a theory about fire-storms and tested it on Dresden, a largely wooden city of absolutely no strategic significance. The theory worked beautifully. A quarter of a million people died, many roasted alive in their air-raid shelters. Almost at the same time, General Groves had a couple of atom bombs that needed testing on live targets, and he selected Hiroshima and Nagasaki, reducing human beings to shadows on concrete walls – if they were lucky.

We have no way of telling whether the culture of Stone Age so-called savages would have allowed these unthinkable cruelties to happen. Quite simply, given their technological limitations, warriors could not muster that sort of power. Also, we can say that whatever fiendish means of murder and mayhem were dreamt up, there was always some ruler who used them, and some henchmen in his train who would find justification for using them.

However, I suspect that the pigeon-shoot and collateral damage mentality could not have arisen. Some tribes apologised to the beasts that they had killed for food; most tribes honoured enemy warriors, sometimes by eating them. In many cases, tribal fighting was largely ritual and no-one got killed. That is, until fire-arms were introduced. Also, even if tribes shouted abuse and insults at each other, they were quite clear that that alone would not scare their enemies off. I am sure Maoris danced a haka not in the belief that this alone would make them victorious, but in the full knowledge that this was a psychological device to boost their own self-confidence.

It remained for our technologically-thinking cultures to believe that the enemy is so cowardly that dropping bombs on them will make them collapse instantly. This thinking was evident in WWII on both sides, when the Germans started by bombing British cities and the British retaliated by reducing German cities to rubble. The same thinking inspired the US in Serbia. In all these cases, it prolongs rather than shortens the war. Clearly, the answer is that humans, particularly men, cannot control themselves when given excessive power, and that goes for armaments as well as political and industrial power.

DIATRIBE 69 - Expensive Risks

Since the beginning of this year no fewer than six, U.S. satellite launches have ended in catastrophic failures. It is now nearly 50 years since Sputnik was launched and many hundreds of manned and unmanned space flights have taken place over this time. Some of these launches were incredibly risky; the Cassini probe carried around 33kg of plutonium. Cassini not only had to be launched but returned to a slingshot manoeuvre around the earth to give it extra speed. One microgram of Plutonium, the world’s most poisonous substance, is quite enough to kill a human being. Some experts put the chance of this mission failing and scattering this lethal material as high as one in 10; the proponents of the mission said one in a million.

The rate of failures of communication satellite launches is still one in about 30. As I mentioned in a previous talk, this means that the International Space Station can expect to have 3 failures of component deliveries; this will almost certainly delay completion by years. New launch vehicles have an even higher failure rate. Ariane 5, the new very large satellite launcher, failed in initial flight at vast cost - around a billion US dollars. Whenever this sort of failure happens, there is always talk of the “leading edge of technology”. This is utter nonsense. Looking

at the six failures this year I mentioned earlier, two exploded, three got stuck in wrong orbits and one was destroyed on launch when it malfunctioned. Ariane 5 failed due to two wrong bytes of computer code.

A couple of weeks ago, *New Scientist* magazine, in discussing these failures, said that the sort of quality control which would avoid these failures would cost “billions” to establish. They also said that companies are encouraged to skimp on quality control because it was cheaper to rely on insurance pay-outs. Both of these claims are wrong.

One of the mistakes in the *New Scientist* statement is that it assumes that the only errors in building a spacecraft are the final ones which lead to catastrophic failure. This sort of assumption is common amongst people with no industrial experience. Catastrophic errors are those which were the ones not found before the launch attempt, and then only the ones which led to abandoning the launch in spectacular ways. With a bit of luck the launch can be fudged and we never hear about the failures. This means that there may be many faults which are found along the way during the assembly process and, indeed, during component manufacture in the many suppliers’ plants which supply the bits and pieces that go into the final satellite and its launch rocket stages.

So, what lies at the root of industrial failures in often mass-produced items which have been made for years or even decades? One of the most common problems is the separation between worker and management. In most cases modern industry is too complex for bosses to make any meaningful contribution to the production process. This means that, in order to assert themselves, they have to interfere with the process by either trying to speed things up, or make them cheaper, or reduce safety procedures (one of the ways they think they can make them cheaper). Contrary to the *New Scientist* assumptions, the notion that cutting corners will actually work out cheaper in the end works only rarely, and the idea that “insurance will pay for it” is ridiculous. Insurance companies don’t work to back up stupidity, but to make money. Insurance companies assess risks and charge premiums according to these risks.. Hence, if companies cut corners and increase failure rates, those failures will be reflected in increased premiums.

However, and therein lies the rub, each individual manager feels that the average investment in safety and quality control may, if he is lucky, not apply to him or his company. And he is likely to insist on having his way to prove he is the boss by ignoring good practice. Remember the *Titanic*? If you look at the world’s spectacular technical failures, you will find that few of them were due to accidents or “acts of God”; generally they are due to deliberate acts of stupidity. Amongst dozens of these I would list the West Gate Bridge tragedy which lost some eighty lives due to attempting a crazy so-called “quick fix” for a sloppy quality problem, and the recent Longford disaster largely due to allowing safety equipment to become non-functional and failure to instruct personnel how to deal with these shortcomings. Also in this category were the horrific Chernobyl disaster and any number of nuclear “accidents”.

Many of these failures can be traced, as I said, to class attitudes – bosses wanting to prove their power against the better knowledge of their subordinates causing failures and then not admitting to the real problems and covering up. There are other, technical, failures which are also class based. For instance, the installation of automatic control systems is often taken to mean that human operators can be dispensed with. I remember an Indian professor – his ignorance was not due to his being from India but due to his inexperience with real work situations – holding forth on how accidents could be minimised by having better control systems as well as better trained personnel. There are two fallacies here: firstly, managements having invested in expensive control systems generally take this as a signal to do away with trained personnel, and secondly, more comprehensive control systems lead to complex fault situations where superhuman abilities are needed to cope with problems. Take two nuclear accidents: In the Three Mile Island an “out of action” board covered vital information on a panel, leaving operators just 10 seconds to try to cope with a complex fault situation when the automatic system had run out of ideas. And the automatic system in Chernobyl had been deliberately by-passed to run in an unstable mode, as a result of a crazy experiment ordered by the managers. How many fault situations can the designers of control systems be expected to think of, when they are up against crazy know-all managements? Another series of disasters resulted from inflicting automatic landing approach systems to airbuses which refused to hand over controls to the pilot until it was too late?

In the best of all technological worlds – which is in itself a contradiction – we would find the simplest possible way of achieving a wanted result linked to the simplest control and safety system. We would find a highly skilled and informed workforce who would at all times be in full control of processes. We would find systems designers who make it their business to involve the human in the process and keep him/her involved. Instead, we find equipment which is shrouded in mystery and where even the designers lose track of what goes on after a year or two or aren’t around when problems occur.

The current idea of keeping knowledge close to people’s overblown chests, coupled with penny-pinching short-term decision-making, while typical of our crazy social system, is the main reason for unnecessary disasters which cost many lives, make workers live in fear, and provide ego-trips for idiots. As always in our society, too much power is placed in too many of the wrong hands.

DIATRIBE 70 - The Millennium Bug - The End Of The World As Bill Gates Knows It

At midnight of December 31, the world as we know it, will come to as screeching halt, or so say the doomsayers. I have more than one problem with that. For a start, that moment happens at different times in various parts of the world; strangely enough, the world has not come to an end every time you shift a computer either side of the international date-line and reset its date setting.

However, we are talking about a very special date here. To refresh your memory, it's all about some early economic rationalist idiot - who has certainly opted for remaining nameless - doing a rough calculation some thirty years ago and deciding that by leaving out a couple of digits of the year in every date in computer records, they could save a minimal amount of space in the record; multiplying that by the many millions of records now being kept on everything under the sun, you came up with a sizeable savings; besides, that was the way everybody entered the year digits into forms.

To fix this problem is a minor inconvenience; you simply had to write a few instructions to translate the entries. That isn't a problem. A far bigger problem is that with programs which have been used for decades, no-one remembers which programs and which records need this adjustment, because not every old program has this bug in it. But why should this sort of adjustment cause the planets to leave their orbits, as one advertisement said? Why should the failure of the stock-exchange cause starvation?

Actually a minor fix can cause big problems. Early in the use of computers the whole pay system of the Victorian Public Service fell over when the tax payment of a retiring Public Servant exceeded \$100000 by an earlier error. The program allowed only 5 digits. As luck – or ill-luck – would have it, the extra byte taken by the extra digit was part of the program, not part of the data and the system fell over. I am just mentioning this to show how vulnerable these systems are; I previously mentioned that the billion-dollar Ariane 5 spacecraft was lost over a very similar fault.

The belief that a minor blue can upset the whole of society however speaks volumes about this society itself. After all, crops won't fail, and floods won't be caused by the way computers may confuse dates. Most of the likely upsets will be in the commercial area. However, don't assume that the inability to pay or to be paid on time is not a serious matter, think of the way traffic in Melbourne as been held up and at times gridlocked because the computer charging system cannot be made to work. Multiply this by the number of computers in super-markets, sales offices in trade and industry and privatised utilities, and you start getting an idea of the hassles that could arise.

In a way, this event illustrates the nature of entire capitalism. The reliance on money makes it possible for the capitalist class to build a wall between producer and consumer; it makes it possible for consumers to go hungry while food is destroyed on farms; it makes it possible for people who need accommodation to go homeless while the workers who are able and willing to build houses and supply the other needs languish on the dole.

The difference lies in that with the millennium bug, the bosses are not in control of this process, and that makes them feel helpless – indeed as helpless as workers are made to feel every time they get “restructured” out of their jobs. However bosses don't fancy taking their own medicine, so the next best thing is to depict the millennium bug in the same light as natural catastrophes like earthquakes and floods.

There are great differences. The millennium bug is not natural. It is the outcome of the unnatural system which is artificially inflicted on ordinary people. Indeed, it resembles a war rather than a natural catastrophe. Also, in coping with its predicted effects, we can observe the vast changes in the human psyche brought about by alienated technology.

Communities have always taken steps to guard against disasters, as far as possible. Settlements were built on high ground against floods; stores were laid in to prepare for drought or crop failure. This might have been done on a local basis; but when it came to the crunch, people shared their troubles. It still happens today with floods and bush-fires.

Since the advent of rugged individualism there have been individuals who sought to isolate themselves from the community in cases of common danger. In simulation games in which a strategy of co-operation with other players actually provides a better chance of winning, most people nowadays go for less fruitful competitive strategies, and everybody from psychologists to politicians says that's natural. Curiouser still, they tell us it's good for us. But I am digressing. I just mention it because it is these same people who insist that there is no strategy to beat the millennium bug other than individuals hoarding goods and guns to better their own chances of survival,.

Of course we know better. In 1973 the bosses, in cahoots with the CIA in an act of class war decided to shut down the entire economy of Chile by shutting shops and factories and bringing transport to a stand-still – almost a rehearsal of what the millennium bug is supposed to do to us. In a swift response, workers re-opened factories and organised food distribution, proving that ruling-class control of the system was an imposition rather than a necessity. It took a military coup that murdered thousands to re-establish the hegemony.

There are threats hanging over humanity in comparison to which the millennium bug pales into insignificance. They don't come from computer glitches or asteroids but are generated by our system, with its gross waste and

poisoning of the environment, degradation of land, misuse of water and depletion of natural resources. Unlike the millennium bug, these threats are not in never-never land. They are here right now with global warming, rising pollution levels round the globe, increasing levels of harmful radiation, disappearance of entire species, melting of the ice-caps and rising ocean levels, to mention only a handful.

If the millennium bug were to restore sanity and a sense of proportion by destroying the structures which cause these very real threats, it would do humanity a great service. Unfortunately, that's too much to hope for.

DIATRIBE 71 - The Technology Of Deception – Shifting The Focus

There is nothing new in the notion of lying to reinforce the established power structure. Of course, Dr. Josef Goebbels is always accused of having invented the notion of mass propaganda, but he was an amateur, and media such as TV were in their infancy.

Today, as technology is used to dominate our lives and indeed to threaten them, privately run propaganda merges imperceptibly with state run lies. Much of the material we see on TV, which purports to be reporting from areas of action are stock shots which get a bit tedious when we see the same plane taking off from the same aircraft-carrier deck for the tenth time. The Gulf War may have been perhaps if not the earliest, certainly one of the most perfect cases where the endless shots of missiles hitting targets were supplied by PR firms using footage supplied by arms manufacturers. Incidentally, it is claimed that recently, for the first time, a Patriot missile actually hit another slow-moving target missile, some ten years after we saw endless phoney shots of SCUD missiles being mown down by Patriots in the Middle East.

The same Wall Street PR firms are also engaged in political lobbying on behalf of their clients, who pay millions for these services. Where Goebbels worked largely for political motives, these PR mobs work for money, but the distinction is blurred, as private industry and government become more and more synonymous. This is particularly flagrant in the area of public health where, as deleterious effects of new technology escalate, governments and private industry combine to run lie campaigns. One example is genetic engineering of plants and animals.

If your gut reaction is to reject these technologies you are on very solid ground. Unfortunately, your gut reaction will be that you oppose these technologies because of a perceived risk to health. That's where the experts come in. By proving that "to all practical intents and purposes" genetically engineered plants are "the same" as their natural equivalents, and by training tame government scientists to agreeing with them in public, they can keep the argument going endlessly. They have even persuaded environmentalists to accept the notion that we need more scientifically trained opponents to stop our arguments from being shot down in flames.

However, this would only happen if we allow the corporate sector to set the agenda for the debate. The effects of many of the new factors introduced into our environment are subtle, and happen in areas where you least expect them. No-one could predict that the effect of thalidomide would show up only in foetuses – indeed currently new valuable medical uses have been found where thalidomide appears uniquely effective. Who would have been able to predict the tortuous path, including a totally new method of disease propagation, which marked the introduction of Mad Cow Disease or BSE into human society? To allow the corporations to hijack the debate into the area of personal safety is to agree to argue about what is known, when almost invariably the problem is about what is not known. Furthermore, with many processes which cause disorders being related to these illnesses through statistical relationships rather than traceable causal connections, such debates could rage forever, as they did over asbestos related disorders and smoking related disease and debility where the proportion of people affected was vastly higher than with victims of genetic disorders or radiation.

Radiation disease in particular cannot easily be fitted into a cause and effect pattern. Marie Curie, pioneer of the effect of radioactivity, died from radiation effects without ever understanding the dangers of radiation. Yet currently there is yet another so-called scare about mobile telephone use, which has been countered by the manufacturers on the grounds that the level of radiation in these miniature transmitters cannot possibly produce discernible heating. This is a bit like saying that high noise-levels in factories cannot possibly impair your vision.

There is a lot at stake. Just as the US and Australian military denied that Agent Orange was poisonous, even though there were good reasons to suspect that it contained dioxins, they are now insisting that shells and bullets with depleted uranium nosecones cannot have caused the so-called Gulf War syndrome. Furthermore, because, in their valued opinion, there is no connection, the troops affected must be making their symptoms up. Yet, as recent disclosures explain, there is a direct causal link between depleted uranium and radiation disorders. So-called depleted uranium, a by-product of nuclear weapon production, is used in armour-piercing shells and bullets because it is heavier than lead and extremely hard. In fact it is so brittle that it disintegrates into powder on impact. Being a source of alpha radiation means that the resulting particles are almost as effective as a poison gas, only they last much longer if they are breathed in or taken in with food. And if the illnesses which result are non-specific, this is precisely what you would expect from radiation-related disorders. The whole thing is clearly a cover-up. The reason why it is now being exposed is that the Gulf War poisoning of

the environment doesn't count, because in the Middle East the people are only Arabs, whereas in Yugoslavia the population being poisoned is white and therefore matters.

Coming back to genetic modification of plants and food, of course the multinationals who are pushing them just love to push the notion that genetic fast-tracking of genetic changes is intrinsically safe. Firstly, like other disasters, problems arising from engineered changes are likely to take a long time to develop; when they do, as with thalidomide, BSE and radioactivity, they are likely to occur in areas where no-one is looking for them.

However, more importantly, few opponents of genetic modification are simply concerned with immediate health effects. We are concerned about a huge range of effects, such as the inability of poor farmers to purchase seeds, the impact on bio-diversity, the abolition of research into biological pest-controls, the effect on species which are not targets and, perhaps most importantly, the problems no-one has yet thought of. Think of it this way: why should opponents be forced to make out a case *against* new technology, when those who are likely to benefit have been unable or unwilling to make out a case *for* these experiments on humanity beyond the increased profitability for a few?

Finally, why should we have to educate our children to cynically mistrust everybody and in particular scientists, a huge percentage of whom work for war, for multinationals and for patent royalties. In a society where consumption is everything, and where the most common foods and medicines may well be poisons, it is simply ruinous to simply say "let the buyer beware"

DIATRIBE 72 - Back To Chaos

A few days ago, I saw the film *Pripyat* screened at the Melbourne Film Festival. Pripyat, as many of us remember, was the town in the Ukraine which was built to house the workers who worked in and around the Chernobyl nuclear power station. The town had to be shut down practically overnight in 1986 when one of the four reactors which make up the Chernobyl power station complex had a melt-down spewing massive amounts of radioactivity all over Europe, detectable as far as Scotland.

No-one is quite certain what caused the accident. In a parallel to our own Longford disaster, top management blamed the builders, the operators and the ignorance of plant personnel, amongst other causes. Accidents like this generally have one primary cause, although from there tens or even hundreds of secondary faults can develop, often obscuring the original fault and turning it into a disaster.

In the Chernobyl disaster the primary cause has never been established with any certainty; however, it has so far been accepted that about 10% of the radioactive material involved was vented to the environment. Recently, another plausible theory surfaced, backed up by some strong facts that the melt-down was due to the station being built on a local earthquake fault and that no less than 90% of the radioactive material finished up in the atmosphere. All this has been dealt with in previous films, including a Soviet one, also called *Pripyat*. Where this one differs is that it brings home not statistical facts, but the individual human tragedy which arises from what some might call the misuse of technology. Perhaps I wouldn't have gone back to the subject, except that it also has profound implications for us in Australia.

After the catastrophe, authorities drew a line on the map enclosing an area 60 km in diameter, nowadays simply called "The Zone". This no go area includes not only collective farm land, but the Pripyat river and the entire town of Pripyat, a model city housing 45,000 people with their schools, recreation facilities and what must have been a pleasant natural environment. Made by an Austrian crew, it is clear that the makers were given an almost completely free hand and, what is more, those interviewed, including workers at the plants still operating, talk with a frankness you wouldn't find in Australian and especially Victorian workplaces to-day. What fears are there – and there are plenty - are fears of the environment. Technology, which supposedly allows humanity to isolate themselves from the vagaries of the environment, now in itself presents threats which have no solution in the foreseeable future. There are not even attempts to ameliorate the known threats. People, except laboratory personnel, are not instructed in the use of radiation counters. The notion of safe levels is assiduously fostered. There is even a regime of two weeks on, two weeks off, for the workers, as if their bodies could regenerate somehow during the two weeks non-exposure.

All this we find from the interviews, which include a conducted tour through the operating plant, which actually shares a wall with the destroyed portion. A door leading to that section is locked, and decorated with a wreath to one colleague who perished in the disaster, although it is well known to the workers that hundreds, if not thousands of those who assisted in dealing with the catastrophe may also have perished, or may be languishing from long-term radiation-caused diseases – no records were kept.

One of the technicians casts his mind back to recall that volunteers came from all over the Soviet Union in a misguided attempt at solidarity and were actually permitted to face unthinkable levels of radiation by handling graphite from the core with their bare hands. Away from the plant, we are given an insight into the long-term effects of the disaster. A conducted tour by a woman laboratory worker takes us through the ghostly area called

the “zone”. A ghostly stadium built two years before the accident overlooks a ghost town. In an involuntarily created nature reserve we see no birds, and the bitter Ukrainian winter even makes the trees look deathly. We are told that wolves and deer once again roam the tundra and taiga.

Boards outside the zone exhort citizens to maintain precautions - precautions against an ever-present and unseen menace. Clearly these precautions are meaningless. The 30km radius denotes nothing. Inside, there may be pockets of relatively low pollution; outside there may be areas of much higher levels. Anyone who has seen a pollution map of the area, knows that the vagaries of the weather at the time of the disaster, has far more influence on the actual situation than any lines drawn on maps by bureaucrats.

One elderly farmer couple has realistically decided to stay and revert to the pre-industrial age, growing their own produce, drawing water from the polluted river which 30 km downstream flows into the supposedly unpolluted Dnieper, which is used by everybody for everything; even though they are breaking the law by being there no-one cares. They not only eat their own produce but the abundant mushrooms, although they know that mushrooms absorb radioactive elements more than other food. There are no services; their phone works rarely; were it more modern, it wouldn't work at all due to the high radiation levels. With hardly any neighbours, theirs is an existence almost devoid of contact except with their animals, yet only a few kilometres separate them from the hi-tech world of the still operating reactors, where workers get bussed in and out. They, too, have been forgotten by the surrounding world. Other islands of humanity exist. A solitary guard patrols lines of thousand-odd discarded vehicles, which might otherwise be cannibalised by surrounding collective farms for spares. He is waiting for more permanent disposal of this scrap; we know that this will never happen.

For Australians this has lessons. Firstly, no-one could regard this scene with anything except horror, given our own part in the nuclear project. Also, it shows how after a short time, all safety precautions are seen to be treated as an irksome part of the landscape, particularly if they are presented as a bureaucratic imposition rather than a community-enforced necessity.

Currently we are being prepared for a low to medium level waste dump in Billa Kallinna, most likely in the lead-up to becoming the world's first “permanent” high level dump; this will mean storing thousands of tons of the world's most poisonous material, which needs to be supervised for a period equal to humanity's existence on earth – in short, we will be building our own “Zone”. We know that, as in the Chernobyl example that, except for the local indigenous population and their radiation-related sicknesses as well as a strand or two of barbed wire, once this dump is out of sight, it will also be out of mind. Except, perhaps, that for a decade or so there will be the odd notice-board referring to long forgotten safety regulations, until obliterated by Australia's hot sun. What has happened to once-proud humanity?

DIATRIBE 73 - The Ideology Of Labour Processes – The Duivken Project

How do you build a wooden boat or ship? Most of us have a fair idea. You start off with the keel. To this you fix the ribs. You get planks to form the hull, and nail them to the ribs. However, before you do any of this, you need a plan which shows the details and lists the dimensions. After all, one does need an expert for planning such complex work, doesn't one?

If you have agreed with me so far, you and I would both be wrong. In West Australia, they are reconstructing an early Dutch vessel, the *Duivken*, which got wrecked on the coast there long before Captain Cook was discovered by Australian blacks in 1788. This vessel, would you believe, was constructed without ribs. The planks making up the hull were individually shaped and joined on their edges. This required great skill on the part of the shipwrights. But ships built in this way were actually stronger.

The chap in charge of this project was on the air recently and told listeners all about it. But he told us more. It seems that no plans on paper ever existed for these ships. Once the size of the vessel was decided and timbers cut to represent those dimensions, the rest was left to the craftspeople who constructed the ship. This had advantages. For one thing, work didn't stop if the foreman was sick or drunk. With minimal division of labour, work-people required little if any instructions once construction had started. Better still, everybody had a stake in the project.

Those of us who read about the power of the Guilds can imagine the conditions prevailing then. Boys would be apprenticed into the trade at the age of seven and live a dog's life at everybody's beck and call. Probably they didn't even get much formal instruction. But they did see how things were done. They no doubt tried to emulate these skills, of which the workers were sometimes boasting. I was told of shipwrights on the Clyde who would take their shoe off, put their toe on a playing card, and split the card in half with their adze. This skill was needed to use the adze to level the deck after it had been put together out of rough planks. No doubt, there were “gentlemen” wandering the docks who thought this was a job requiring no skill, and indeed the workers themselves thought little of these skills until reminded of them.

By age fourteen, these boys had internalised most aspects of their craft, including the decision-making processes which allowed them to work with a minimum of supervision. But they had learned more; they were part of a social structure and had considerable security and self-possession.

It would be silly to regard these conditions as a bed of roses, when at times life must have been near unbearable and when the system rejected those who had not gone through the proper processes. I think Marx was merely expressing the obvious when he called the mill mechanics “aristocrats of labour”. Back to the *Duivken*. Apparently the old type of ship-construction didn’t fade away as new and better ways were found. It was changed as the skilled workers were replaced by labourers in places like Britain and Spain, while the Dutch persisted with the old, skilled, method. Technology then, as to-day, is often driven by social change, just as much as social change is brought about by technology. The notion of linear development of technology which gave rise to the notion that technology develops regardless of the conditions under which the development takes place, is quite wrong. Marx’s one-time wishful notion that “advances” in technological practice itself would lead to the disappearance of capitalism has not worked out.

Present-day technological change, in fact, is rarely driven by efficiency. Take the latest growth industry, the call-centre. Instead of ringing your bank or insurance company to find out about the state of your account, you ring a toll-free number which takes you to anywhere, only you wouldn’t know whether its in Melbourne, Sydney or Albury or New Delhi. It would, of course, make sense if it were in an Australian country town, to create rural employment, but as likely as not, the powers that be feel that this wouldn’t be cheap enough. As far as the banks and insurance companies are concerned, the call-centre provides services cheaper than handling information through the branches; as far as customers are concerned the information is not the same, and it often takes several calls to get it. Call-centre operators not only have excessive work-loads because the computer directs a new call as soon as the previous one has ended. Also, the reduced service leads to considerable aggression from callers, which stresses operators. The pressure to handle calls in ever shorter times – they are checked by the computer – affects the operators’ health.

However, no-one can really tell whether this system is more efficient than the old relationship between branch employee and customer, because it is impossible to fathom how much extra work is created in the branches by this system. Also, anyone with a smattering of statistics will know that it is difficult to predict the density of incoming calls. Indeed, so uncertain are bosses of these centres that they constantly change their modus operandi. One thing is totally predictable – the hatred which customers develop for their banks.

I would not like to give the impression that the introduction of the new technology is entirely senseless. On the contrary, from the class point of view it makes good sense. Bosses can prove that from day to day they are trying to increase the level of exploitation. They can also prove that what they personally are doing is absolutely essential, particularly if they make changes every few weeks.

Let’s go back to the *Duivken*. It was built by a system which spread skills amongst the people. It allowed stability in the work situation, so much so that projects lasting longer than a century, such as huge cathedrals, could be completed successfully by people none of whom were alive when construction began. It allowed people to contribute, each exercising their skills to the maximum, yet achieving, in the case of ships, buildings and gardens, a pleasing whole.

Such satisfaction can still be achieved to-day. While it mightn’t work for a highly individualistic and experimental structure like the Sydney opera house, it did work for St. Peters in Rome and, I fancy, the pyramids. It depends on mutual co-operation between the builders rather than the strict control by ego-trippers and their bean-counting bureaucrats.

DIATRIBE 74 - The Twilight Of Technology

Last week building unions offered to complete the leaking CityLink tunnel, using their expertise. Predictably, the company said “no thanks, we’ll fix it ourselves”. They are tackling the problem the way they know best - by employing QCs in a court action to decide who is to blame. A quick look at the technical problem: The water-logged soil in the area is highly unstable; that’s why the Arts Centre buildings had to go five storeys down to find a suitable foundation (Ground level is called level 5). An air-filled pipe such as a tunnel in unstable water-logged soil may move because it has tremendous upward force acting on it. Underground tanks, which have similar properties, have to be anchored into the ground to stop them from popping up when empty.

From published drawings it appears that the chosen solution expects the tunnel to flex and the movement to be sealed by a 3mm thick plastic membrane. The fact that the tunnel is leaking means that the membrane is already ruptured and that the application of a concrete grout, which is what is being done, can only make things worse. I wouldn’t know what to do; workers with many years of experience behind them may well have a variety of solutions. One thing is certain: there is no quick fix. Yet a spokeswoman for the project gave a firm promise of a month to re-opening, a statement with a value which may well rhyme with her name, Joan Bulpit.

What is more worrying is that ongoing quick fix experiments could lead to a catastrophe similar to the West Gate Bridge collapse forty years ago, under similar circumstances, only this time round flooding would be the problem. The pressure exerted by the water, added to the pressure exerted by the court cases and CityLink's bottom line, is a potent and catastrophic mix.

Once again, as in so many of today's technical calamities, we are faced with a problem which is not, as they say, at the cutting edge of technology, but has been solved any number of times in the last hundred years. You ask yourself why, after three centuries of capitalist industrial technology, we should have this deterioration in technical standards.

I am talking about a deterioration of standards because, at a time of unprecedented development of the means of communications, the incidence of repeated failures of particular kinds is becoming more and more common. For example, the recent nuclear accident in Japan is the umpteenth time that criticality-caused disasters have been in the news. The whole basis of nuclear bomb construction relies on the fact that when fissionable materials exceed a certain mass, a chain reaction results. Indeed, atom bombs consist of a shell containing several sub-critical masses of fissionable material, with a mechanism which triggers the bomb by physically imploding these masses into a critical mass that is prevented from dispersing instantly by the strength of the containing shell. Even most clued-up lay people know that once you have such fissionable materials, you have to ensure that they never form a critical mass, but apparently this was not known to the workers at Tokaimura, who were asked to implement a totally outdated and unsuitable mixing process to produce nuclear fuel, and who didn't know what hit them when their material turned critical.

Similarly, after 150 years of railway safety systems, we still have rail disasters caused by human error where drivers override signals. 100 years ago, before the introduction of electricity into transport systems, foolproof signalling systems were designed to prevent this from happening. Catastrophes like the Westgate Bridge collapse came half a century after box-girder bridges became common, and these disasters are still happening.

While ancient Egypt had pyramids which collapsed and Pisa's leaning tower suffered from a soil failure not unlike the Burnley Tunnel, these were generally one-offs, with the designers and the workers learning their lessons from the failures. Why is it that so many failures are repeated nowadays?

There is a variety of reasons. But in the case of the tunnel, the report in the *Age* gives us a fair lead. On the opposite page is another report which tells us that even at the young age of forty workers have little chance of getting another job. In other words, the more experience we have, the less chance we get to apply it. The rejection by CityLink of the assistance offer by highly experienced workers, given this fear on the part of employers that their ignorance could be shown up, was therefore a foregone conclusion. However, this is obviously not an inherent feature of capitalist technology, which has now been around for 300 years and in the past proved very inventive. I think it is due to two factors:

Firstly, a qualitative change in technology. In the past, it was understood that there are vast areas of possible innovation, ranging from mining to production technology to agriculture. These innovations needed experiments, field tests and lots of development work. Above all, they needed lots of on the job experience in the first place.

Since the 1940s, enormous efforts have been spent on control technology often to the exclusion of other areas. Once the basic functions of electrical and electronic elements are understood, there is no difficulty in applying them to a variety of control applications. For example, automatic telephones date from the early part of the twentieth century. Because of the ease of designing such circuits, and the fact that you can get them to work with little difficulty, a belief has developed that all engineering design requires little experience and can be implemented by kids out of school. As the managers of industry have no insight into these processes, often having no experience beyond an MBA (Master of bugger-all), they feel that there is a good excuse to reject older people.

There is another, related reason. Managers are now convinced that the only improvements they want are to have existing jobs done cheaper and faster. This was the main underlying idea behind Taylorism, introduced at the turn of the twentieth century. That's why workers are forced to work more intensively for longer hours, regardless of whether this actually makes goods cheaper; you can work out for yourself how much money was saved at Longford after they (and we) paid for the disaster.

Finally, and that certainly applies to the tunnel, the notion is that you should split up each job endlessly; being a middle-man is far easier than being a contractor; with a bit of luck, all you have to do is collect profits. That's why we now have endless hassles over who is responsible, rather than discussions over how to fix the tunnel. The gross incompetence which characterises to-days industry is not altogether novel, but its all-pervasive nature and the disregard for skills, which I have commented on, all spring from the way in which, despite bleating endlessly about the need for competition and never-ending mergers, sell-offs and graft have led to virtual monopolies in areas like the construction industry.

Truly, we are witnessing the twilight of capitalism as a technologically progressive force.

DIATRIBE 75 - Technological Disasters Of The Past

Last time I was asked to comment on technological disasters of the past. My main point about technological disasters of the present is that generally they need not happen. I don't know what happened in the NSW rail disaster Monday week ago, but we can say with certainty that this accident need not have happened. Contrary to cars, which can achieve panic stops from relatively high speeds over a few metres, trains need long distances to stop because sliding friction between steel rails and steel wheels is far lower.

The discovery of this fact didn't require deep insight or applications of computer technology. Railway technology is around 200 years old, and amongst the earliest problems tackled were signalling and safety. Some of the safety ideas developed are still in use to-day in areas other than safety. For instance, the much vaunted "Just in Time" system, which minimises stocks of work in progress, uses a so-called Kamban, a token passed along as work is completed. Early signal systems on railways had similar systems which required train-drivers to pass a staff to signal-men, which allowed them to set signals and points only after the line had been cleared. With modern electric trains came systems which made it impossible for drivers to ignore signals – the so-called "dead man's handle", which requires the drivers arm to be present at the control to energise the motors and de-activate the emergency brake.

With the advent of 300km/h "Bullet" trains – which to my knowledge have never suffered an accident due to control system failure - multiple layers of safety precautions were installed. These range from five zones of speed limits on a fail-safe basis, right down to multiple radio communications between drivers as well as system controllers. Instead of running yet another enquiry, the money should go toward implementing some of the well-established and tested solutions. This, however, is not going to happen, as the various lawyers and financially interested parties desperately search for the individuals who can be blamed for what, after all, was a predictable disaster. Predictable because they have happened before, and nothing was done to change conditions.

Of course, we will be told that the disaster was due to human error. What a cop-out! The whole purpose of safety systems must be to minimise the chance, as well as the effects of human error. Of course, the human must play an important part in the whole system, but that need not mean that a driver can routinely override signals or exceed speed limits or cause disasters by having a heart-attack. It is precisely that because all of this is possible for a car driver, that road travel will always be hazardous. As an interesting side-light we recognise the relative safety of train travel by highlighting seven deaths in a train smash and spend time and money enquiring into it, when a car accident with a similar death-toll would have been forgotten after a day.

But let's get back to disasters of the past. As I said before, the recent technological past gave us many examples of failures which were due to inadequate understanding. Take the Tay bridge catastrophe which destroyed a structure which was seen as a miracle of British engineering until it was literally blown down during a dark and stormy night late last century. No-one, to my knowledge, had done studies on wind loadings, and wind tunnels were unheard of. Significantly, almost a century later, the Tacoma Narrows Bridge in the US got blown down in a spectacular event which has provided television footage ever since as the structure twist and turns in the storm like a snake in distress. These structures were really at the leading edge of technology at the time. Even the solutions, which in both cases used more rigid constructions, are not necessarily the simplest and most effective ones. This is because problems of turbulence in fluids, of which these are two examples, are considered the most complicated in all of engineering.

Some people misunderstand necessary tests as failures except for the one which ultimately succeeds. During construction of the Snowy Mountains tunnels, numerous test bores for tunnels were undertaken. You may have argued (lots of people did) that to dig parallel test bores simultaneously resulted in gross waste. Indeed, some of this work was kept secret so as to avoid such accusations. However, the work had to be done in this way if the project was to be finished in reasonable time because the tunnel construction could not commence until a feasible and economic route was established. The same excuse, however, could not be made for the total project, which was misrepresented as a "hydro-electric" scheme when its far more important aspect was irrigation, which has since done terrible damage to our south-eastern river valley systems.

There is no doubt that similar damage was done by civilisations all round the globe in ancient times. Let us not forget that the mythical Garden of Eden was located in parts of Iraq which are now semi-arid, and that successive Mayan civilisations also destroyed the soils of their lands. Australian native land use also altered the nature of Australian flora and fauna. The advent of Polynesians in what we call New Zealand wiped out an entire range of flightless bird species.

No new species ever emerged on this globe which did not materially affect its environment. Indeed, such changes must be seen as one of the mechanisms of evolution. The desire of a tiny proportion of environmentalists to "make no impact on the environment" is meaningless. Human beings have as much right to exist as any other and in this process of existence will inevitably affect the environment.

There is, however, a vast difference of degree between the unwitting destruction caused by locusts and the havoc wrought by bull-dozers; there is a further difference between desertification caused by the ignorance of agriculturists and the laying waste of large areas of Queensland merely to prove that landholders have the means of doing this to prove a point to conservationists.

There is a vast difference of degree, again, between inventing a fish-hook which enables people to fish for sustenance and the type of mechanised fishing which strips the oceans of life. There is a difference between killing wildlife for food or in self-defence and inviting the rich of this world to get their sport from the wiping-out of large wild creatures. There is a vast difference in making mistakes in developing technologies leading to failures and catastrophes, and polluting the entire globe.

It is, however, not enough to blandly state that there are these differences. Having developed the means of unleashing such forces, thinking humans need to analyse the power structures which allow their deliberate misuse. After all, the common denominator to most of world's human disasters nowadays is the alienation, which makes a figure in a bank-account more important than any number of human lives, and which makes people in power delight in the suffering of others who have never done them any harm and indeed whom they wouldn't know from a bar of soap. In such a society technology is no longer seen as a means to human ends, but merely as a means of extending and reinforcing the power structures.

DIATRIBE 76 - Millennial Musings

In the year 1899 numerous people went in for predicting the developments in the coming 20th century. Wherever these related to coming technologies, they were often close to the mark; the remarkable insights of Jules Verne (except for his deliberate spoofs) are good examples. In hindsight we can say that virtually all the technologies which were developed in the 20th century existed in embryo at the time. Just as appropriate, we might mention with similar hindsight, were some of the criticisms then levelled against the technological society by people like William Blake (he of the *Satanic Mills*) and Thomas Hardy.

In our present day I venture to say that predictions for the next thousand years of humanity are equally easy, if you combine the ravings of the gurus with the critical insights I have just mentioned. In 1899 the most "hopeful" predictions were about what *people* might be able to achieve. In the year 2000 we start with pessimistic ideas of how many human beings we can do without. Let's look at this proposition first.

In the year 3000 we will not be able to shear sheep by robots unless they happen to be robotic sheep. The idea of doing away with shearers has obsessed entrepreneurial idiots with no understanding of the human contribution to the labour process for the last forty years or so. Some four or five projects have cost millions and led nowhere. At this stage it takes longer to strap the poor creature into the frame designed to restrain it than it takes a present-day shearer to perform the whole task. All this shows is that whoever puts forward the crazy solutions has not analysed the problem. The shearing "problem" is not just how to guide a handpiece over the sheep's body; it is how to do the literally hundreds of movements involved in getting the creature into the pen, controlling and locating it during the shearing operation and delivering sheep and wool to complete the task. In 40 years of research work the robot shearing projects have failed to get anywhere with a minute part of the task, (perhaps the easiest part); we can predict with confidence that in 25 times that effort, which would be 1000 years, they will get nowhere. This one example shows the barrenness of our current technological scene. If the problem had been defined properly, all that waste could have been avoided.

I am joking, of course. The problem tackled was indeed well defined. It was how to make money by promising greedy entrepreneurs means of enriching themselves by replacing human labour by machines. This problem – the desire to make more money - is currently being tackled simply by returning to the means of exploitation practised in the 19th or even the 18th century in many parts of the world, including our neck of the woods. These means consist of lengthening the working day, cutting workers; pay, and exporting jobs.

Because of the mis-definition of the function of technology there has been little technological progress in recent decades. Instead, the efforts of technologists have concentrated on identifying areas of consumer goods which could be manufactured and sold to the wealthy in wealthy nations rather than meeting the needs of ordinary women and men. If they did meet those needs it was by accident, default or serendipity. Much of the effort went into perfecting the means of protecting and enhancing the power of already obscenely powerful individuals. Much intellectual effort went into justifying these activities. Institutions of learning were more and more dedicated to these aims. The current mindless dedication to proliferating "information", which can generally be defined as doubtful data, only gives us a glimmer of hope because as yet it can be used to communicate hope.

To project these developments in linear fashion for another thousand years would be insane. If we run projections at all, they must be based on an assumption that humanity and some form of human civilisation will exist in a thousand years. This assumes that the human psyche will change totally over that period. This will obviously happen. If we consider the rate of change in the last two centuries imposed on us by the power-brokers of the present society, we obviously will accept it as natural that the pace of change will be maintained, although its direction will be dictated largely by the forces already unleashed.

In such a scheme the recent, two-centuries-old catastrophic move to a market-driven civilisation (if that's what it is) must be seen as a temporary glitch. It is a crazy system, which has to find ways of selling unwanted goods to some of the very people it wishes to exploit in order to retain a small percentage in the form of profit. Somehow

or other, we will have to revert to a use economy. This will not happen easily, given the flexibility of our ruling class, and the entrenched ideology of material accumulation which has now become global. And yet it must end, because we are running out of alternatives as we run out of resources.

We are here talking particularly about water. The current argument about the Murray-Darling and the Snowy is but a forerunner of the fights yet to come world-wide as water becomes scarcer while populations are still increasing. Furthermore, water is difficult to export in quantity, although we do it very effectively by exporting crops which require massive irrigation schemes. Clearly, this isn't going to be a peaceful process. As with oil, enormous suffering will be inflicted on the poor while the rich rob them of resources. Energy is going to be next. With the US already using up a substantial proportion of the energy compared with that received from the sun, we are not far from the limit there, as the rest of the world "catches up". Finally, we get to the intangibles, dealing with the catastrophes due to greenhouse heating, pollution and things like salination.

One way or another, these very real problems will be driven to the front of people's consciousness. There are no solutions. We cannot manufacture cubic kilometres of water. Even if we find ways of producing energy by nuclear fusion, the direct heating effect will also heat the planet. While there will be a great impetus for technological innovation of a quite different and much more real kind to the present, all we can look forward to is radically improved resource conservation..

All this is likely to be resolved one way or another before the year 3000. Either humanity will destroy itself using technology plentifully available now, or we will have found a way of accommodating ourselves to the reality of nature. If the latter is the case, then the turn of the next millennium will indeed be a future worth looking forward to, as humanity once again balances effort and reward, as Australia's aborigines did for many millennia before the present one.

DIATRIBE 77 - Technology And Freedom

Technology is generally advertised and sold as giving people freedom. While certainly water at the turning of a tap gives freedom from having to spend hours a day carting water from a river and possession of a car gives you freedom to visit friends living 20km away, one starts wondering when a real estate agent advertises, as I saw in a recent local paper, the possibility of being "free from neighbours" in some "secluded" spot in one of the newly yuppified areas. You may, one assumes, still contact them on e-mail or, perhaps, through the courts, if you think their 2 metre high fence is 10 cm too close. Whatever you do, don't try talking to them face to face!

How can these miracles be achieved? Through money, of course. And how do you get this money? For most of us, through unremitting toil. Including travel time, we are now expected to put in 60 hours weekly plus in order to get our food, clothing and shelter, and untold extra hours to achieve and maintain our so-called life-style. That goes for those of us who are lucky enough to have a reasonably regular job. Those who haven't, still have to spend similar hours chasing up a crust, or at least pretending, with the likes of Costello and Anthony looking over your shoulder to cut your dole if they think you don't work hard enough at finding a non-existent job. But it doesn't end there. Not only does the system manage to keep your nose to the grindstone, but it keeps you in a permanent state of fear and trembling in case it manages to think up new ways of threatening you.

Now, don't get me wrong. I wouldn't dream of suggesting that we go back to the 1700s when many women died in childbirth even if they were in reasonably affluent situations. Right throughout history, life expectancy of human beings was such that in the last 50,000 years world population only increased marginally from generation to generation world-wide. This must have meant a lot of grief for the survivors. On the other hand, the very increase in population also created conditions which made life miserable – who would want to live in cities which were dominated by open sewers, and created the pre-conditions of disease and starvation when supplies failed or when some power-mad ruler took it into his head to lay siege and sack a city. For all the advances made in a handful of rich societies, this is still the lot of most of humanity.

As far as I can make out, uncertainties and unnatural tragedies were always part of class societies over the last few millennia. Cohesion, in a class society, is always cohesion under central control. Rulers of course always or at least in most cases like to give their pet schemes, be they war or major projects, some popular appeal – anything as long as it doesn't involve easing people's burden.

Recently there was a documentary on SBS showing how the Pyramids were built, the biggest one taking 30 years which meant laying a 2 tonne block of granite every two and a half minutes. The film suggested – and it makes a lot of sense – that these massive projects were instituted to keep the agricultural population occupied in voluntary labour whilst waiting for the flooding of the Nile; much as the US space program diverted people from the shortcomings of their hum-drum existence. It was all well described in Orwell's *1984* with its shadowy never-ending war diverting the oppressed population.

We can, with no difficulty, see that the pre-occupation with mechanical and electronic toys which characterises our generation, is not and never was meant to be anything other than a diversion from the aimlessness of so-called developed capitalist society and a smoke-screen for exploitation.

Just as the Egyptian labourers volunteered to have themselves crippled by lifting and dragging unbelievable loads, our own society has allowed itself to be persuaded that the short-changing of our generation into soul and health-destroying passivity is not only what they want, but is an enormous advance over previous societies. Today, after two and a half centuries of capitalism, creativity in arts and sciences appears at best on a par with that of ages past. Indeed, looking at the renaissance in Italy and the flowering of astronomy in the middle East and in China at various stages, it seems clear that the much vaunted highly individualistic lifestyle – everybody being free to do exactly what everybody else does as long as they spend money doing it – isn't necessarily the best way of advancing humanity. Despite the nonsense spouted by some social Darwinists, what humanity has achieved, we achieved through co-operation, not competition.

The type of technology which made some people rich, almost by definition, impoverishes and enslaves the rest of us. One of the "achievements" of our system is that most of us firmly believe that the impositions of the system are some form of freedom. Marx asked workers to recognise that we have nothing to lose but the chains that bind us. What the system tells us is that these chains are a valuable asset and that we need to spend our lives in acquiring more of them, and to value the way we are free to acquire them.

How much of this stuff do we really need? Nobody knows. Once they have shut down public transport, we really need cars to get to work. The fact that we work one third of our time to run and replace private cars, no longer registers, nor does the fact that on this basis these cars only cover about 10 km/h, less than one third of the speed of the old discarded public system. And where we once took pride in building bigger cathedrals, we now use similar efforts to build freeways. Ultimately, the car and freeway is taken for granted, and the discussion centres around the quality of the car and the freeway; the possibility of alternatives has disappeared from our minds.

In a way, once this has happened, we have a sort of freedom. Marx and Engels in the "German Ideology" said, perhaps tongue in cheek, that freedom is the recognition of necessity. It means that if you can redefine necessity, you can have a freedom of sorts.

This brings me to my point. Few of us can pinpoint our anger, an anger which pervades the whole of society. Capitalism, with its insistence that freedom lies in the fulfilment of desires created by the marketers, has replaced what used to be called divine discontent with a culture of instant but illusory gratification. The freedom granted by capitalist technology is not a freedom to be creative; it is a not-so-subtle enslavement to consumer values.

DIATRIBE 78 - Transcending Class?

David Suzuki, well-known environmental activist, is currently touring Australia to promote his latest book, and, together with about a thousand others, I went to hear him at Melbourne's Dallas Brooks Hall. As was to be expected, Suzuki's list of environmental disasters was detailed and impeccable. Equally correct was his belittling of the notions of recycling and similar approaches to what are clearly problems of over-consumption and over-population. He was scathing about using the notion of the "trickle-down" effect. He spoke approvingly of the protests against the World Trade Organisation in Seattle – in short, as far as presenting the facts on environmental havoc goes, his address could not have been any clearer. However, I was troubled by two aspects of his talk, The first was his use of the term "we".; he seemed to have used it to denote the following separate entities:

- Humanity as a whole
- White industrial society.
- Consumers
- Environmentalists.

My problem with this wide net is that it would suggest that "we are all in the same boat" when it comes to the destruction of our planet. The natural conclusion from this is that activists must try to educate, amongst others, those who derive immense power from dominating global society to make them change their ways.

I do not believe that this is possible; if it can be done, it can only be done after the planet has suffered harm of a magnitude which convinces power-brokers that they cannot continue in what they are doing. For they not only control the development of destructive technology, but they have the means of isolating themselves from the effects of their actions, as well as isolating themselves from the reality of what they are doing.

In praising the actions of the Seattle protesters, Suzuki showed that he appreciates that when it comes to the crunch, we (the people who take action) are on one side and that those on the other side are our enemies,

enemies who are quite prepared not only to destroy our habitat but are also prepared to take every possible action against their opponents, including murder and war.

The second problem I have with Suzuki's analysis was his contention that our system is insane. It may be insane when viewed from an imaginary neutral point of view, but from the point of view of our rulers and their "values" it makes very good sense indeed. If they were insane, and we were the doctors in charge of their diagnosis, we could isolate them to stop them from doing harm. However, the boot is on the other foot – they are the "doctors" and we are their experimental animals. The problem was very well analysed in the silent film *The Cabinet of Dr. Caligari*, which, at least in its original version showed the "madman" literally in charge of the asylum. The madmen in our society are in charge of deciding what constitutes sanity. Our system may be irrational, but it has a powerful rationale. My contention is that environmental destruction, far from being a threat which transcends the ever-growing divisions of class, is the ultimate expression of unbridled class power.

This is not just an academic point. When Suzuki was asked about strategies to halt the environmental disaster, he said that he had no immediate answers. Fair enough, no-one has. However he then went on to suggest precisely those Band-Aid non-solutions which he had previously condemned or ridiculed; in particular, he advocated lowered personal consumption.

This, of course, is the favourite middle class solution. There are whole industries out there based on the notion of using less by buying more. There is even a term for it – Green Consumerism. For instance, people are urged and in some cases coerced to buy new, more efficient and less polluting cars. Calculations show that in nearly all cases, hanging on to a car as long as possible is more environmentally friendly than buying a new one with all the environmental cost of producing it and the cost of discarding the old one. Indeed, it is rare to find an example where replacing any item which is at all serviceable gives environmental gain. With few exceptions, saving money will save the environment.

So, environmentally sound strategies rarely cost money. Do they cost jobs? Rarely in the timber industry, it is the clearfelling which has cost four jobs out of five in the years since WW II. If the industry went back to selective logging, these jobs would be restored, and the industry would go a long way towards becoming sustainable.

Besides, who can believe that industries are here to employ people? Much of the technological effort in production in the last two hundred years has aimed at cutting out human labour to save costs, and current thinking aims at cutting it out even if that increases costs. Workers have been brainwashed into believing that we can only get a living by destroying the environment, and that is therefore in our interest to assist in the capitalist orgy of despoliation which is necessary to maintain the "growth" which fuels profits. There is absolutely no evidence that in order to survive we have to work day and night. Indeed, even something like four hours a week would sustain life at current rates of human productivity.

That's why I think the Suzuki argument is flawed. To be environmentally sustainable, we don't have to work harder; in many cases we have to work less. We can provide higher, not lower living standards for ordinary people in the way of health, nutrition, housing and means of self-expression by merely cutting out the waste entailed in infrastructure required for the capitalist system. It isn't just that the people's slice of the cake is too small. What matters is the huge slice of the cake currently being consumed by the global corporate rats.

In short, environmental futures for our world can only be achieved by opposing global capitalism, the growth paradigm, globalisation and the corporate structures which cause the growing gap between rich and poor. Nor are these impositions coincidental; they are part of a sum-total of strategies which now amount to a global conspiracy. We, the world's inhabitants, are not in this together as some would have us believe. The sooner we realise that there is a deadly struggle going on in which political power and technology are the weapons used against us and against the global environment, the better it will be.

DIATRIBE 79 - Sports Cheating – Lots Of Cash And Not Much Sport

As we head towards the Olympics the question of drugs in sport is getting a lot of media attention. This is really a red herring. To regard the type of person who gets to compete in the Games as being an ordinary human being stretches credibility. The Australian Institute of Sports (AIS) which is a fair example of the type of organisation involved in preparing athletes for major events, costs about \$100 million a year to run. This would be fine if it resulted in sports programs for schools, general fitness improvement techniques for the rest of the population, and reduced stress all round.

Instead, almost the entire emphasis is on the winning of medals. This means not only specific forms of fitness relating to the particular disciplines, but also psychological techniques which concentrate on competitiveness bordering on the paranoid. Watch competitors at the start of an event – ever see them chatting to each other?

Of course, all Western sporting competitions started from war and none more so than the Greek Olympic Games in which participants competed naked and women were barred, if I remember rightly, on pain of

death. The disciplines were mostly, if not entirely, warlike. In the pre-Columbus Americas it was even worse, many games ending in the death of the loser and severed heads being used as footballs. Against this, in one of the Pacific islands, an annual “race” is truly a fun run, with everybody participating and no winners.

It is, I suppose, natural for people to wish to do better. It is natural to wish to develop your skills, and measure yourself against yesterday’s achievements. This, rather than outdoing some “opponent”, is a meaningful exercise, unless the opponent is a match in all physical details, particularly brute strength. Unless, of course, you have ways of getting around the handicaps imposed on you by nature and circumstance. That’s where modern technology comes in.

This technology comes in various packages. Mostly these boil down into two categories – training and drugs. Let’s not make any mistake – both are not open to the ordinary citizen. It seems ridiculous to treat drug-takers as criminals whereas athletes who have literally hundreds of thousands spent on their training are treated as heroes. Much of this training depends on methods which are not publicised. Then there are special clothes, such as the currently disputed swim suits. Strangely enough, the highly advertised running shoes such as Nike make absolutely no difference to actual performance, but having expensive gear would certainly be intimidating to competitors who can’t splash money around freely.

You might argue that any of these things can only improve performance by a fraction of a percent. However, that’s all it takes to make the difference between a world record and an also-ran nowadays. Indeed, without the timing technology now available at various venues, you couldn’t even separate the finalists. And although the official timekeepers always splash their logos in a big way in their advertising, the actual timing is done by equipment which bears about as much resemblance to a stop-watch as a high grade stop-watch does to an egg-timer. Yet the official time-keepers always make you think that the time-piece you buy that bears their name puts you in the same league as an electronic timer with a guaranteed five digit accuracy.

What it ultimately boils down to is big money. Big money in training, big money in equipment, big money in sponsorships, big money for promoters, big money for bribes, big money for cheating, big money for television, big money for media coverage of all sorts, huge money for telecommunications, big money for contractors, big money for architects, big money for organising bureaucrats.

For athletes who win, fame lasting a couple of seasons. For athletes who lose, only derision and obscurity and a major incentive to take recourse to drugs, if indeed, their trainers don’t do it for them.

By rights, anyone interested in real sport should either get very angry or laugh the whole thing off. We now have whole generations, myself included, whose health is adversely affected by not getting adequate exercise. We, too, are given the technological treatment. Go to any gym and you find treadmills which allow you to pay for what is in effect no better than running round the block, stairclimbing machines to simulate what you can do on the back door steps, exercise cycles which allow you to simulate a ride to work without the fare-and-time saving, and other complicated machines for rowing, weight lifting and goodness knows what as long as it can be charged for. What is more, we are developing or have developed a philosophy which sees any form of physically hard labour as demeaning.

I remember when we went bushwalking even as long as thirty years ago, often after trudging up a hill with a twenty-five kilogram pack we would say “if the boss asked me to do that, I would tell him to get stuffed” And therein lies the other reason why we are a generation of people who are spectators rather than activists. Many of the activities which are physically hard are rejected because they are perceived to be demeaning. We expect technology to do all the hard work for us.

Another disaster is the way sporting activities in the community have been commercialised; this applies particularly to mass sports such as cricket and football. In Eastern Europe between the wars, sport and PE was practised as a form of political involvement, often nationalistic and party-politicised. Often it went back to the same old destructive preparation for war. This was not necessarily the only motivation. Being fit makes people feel good. Standing in a crowd of one-eyed supporters, whether it be a local football crowd or a nationalistic mob regarding other teams as the enemy, no matter how good their performance, may bring a rush of adrenaline but isn’t likely to get you very fit. Competitive games, in to-day’s climate, tend to be counterproductive, both in terms of philosophy as well as real involvement.

For hundreds of years Roman emperors kept themselves in business by staging bloodthirsty games on a scale which ultimately bankrupted the state. Nothing much has changed.

DIATRIBE 80 - Conflict Of Interest

With Qantas defending itself against allegations of disregarding air safety, the question of the conflict inherent in the motto FBC (Faster, Better, Cheaper) is coming to the fore, once again. We had a classic example in the case

of the Longford disaster not so long ago. When you look at the FBC idea, common sense tells you that you can only choose any two of them. This was recently brought home to NASA under its new manager Dan Goldin who took over after the Challenger disaster which was typical of easily avoidable failures. He was convinced that he could cut corners and get away with it. The result was that two successive Mars probes literally bit the dust. The first of these crashes was due to computers having been programmed to interpret measurements in the imperial system instead of metrics. Even that need not have been fatal, if the flight controllers' warnings had been taken seriously instead of being ignored. The polar orbiter failure which followed was never fully explained, but was also attributed to some minor error.

Alarm bells should have rung earlier when Donna Shirley, an experienced engineer in charge of the Mars Lander programme, resigned over management's insistence on adding more components to the mission making it less reliable. A similar approach was called "affordable safety" when adventurer Dick Smith was in charge of air safety in Australia, with the predictable result of small commercial planes crashing, killing pilots and passengers, after falling "unpredictably" out of the sky.

We can't argue that capitalism and safety are incompatible. After all, we are looking at a scene where nearly every new project, even the simplest, like selling tickets for a sporting venue, tends to be disastrous. This was not always the case. You would have to be very brave to claim that you could pinpoint the cause for this deterioration, but that isn't going to stop me from trying.

Firstly, there isn't one cause but a number. The prime one is the total victory of capitalism world-wide. I am not suggesting that the sort of state capitalism as practised in the East Bloc was a real alternative; indeed, from the environmental point of view, it was just as bad or sometimes worse. As I see it, one of the differences lies in a change of philosophy amongst the ruling class since the fall of the old Soviet Union. Before then, the system saw itself as threatened by an alternative, regardless of how skewed this view was. The fight against this system was expressed in the cold war. Now, I think, the rulers of capitalism are slowly waking up to the instability of their system even if there is no outside threat. There are lots of signs of their insecurity. For instance the Multilateral Agreement on Investment (MAI) which is now on ice, was totally unnecessary, because the power of multinationals is sufficient to enforce the MAI provisions. Similarly, the recent trade talkfests in Seattle and in Switzerland show weakness rather than strength. All the important decisions are made behind closed doors anyway, and can be co-ordinated by teleconferencing.

What has all this to do with planes falling out of the sky, and with stadium queues overflowing? Simply, with managements no longer sure of their tenure, the time-scale of their decisions is becoming ever shorter. Reinvestment of profits, necessary to produce earnings is almost impossible. Hence we get previously productive enterprises now concentrating on financial deals, buy-outs and amalgamations. This also explains the preoccupation to the point of obsession with so-called information technology. When you remember that this has nothing or very little to do with information, but simply means the writing of software programs, you can see that the obsession is fuelled by the way in which software can be written, in the short term, and its selling price bears no relation to its production cost. It is as ephemeral as its purposes, such as games and other entertainments, gambling, pornography and, as always, military gimmicks.

There are plenty of areas where real technology could still be developed, but these will not be looked at because they carry the usual five-to-ten years development tags. Now, put yourself into the shoes of a newly elected or employed Chief Executive Officer. He has been put in because the company has stagnated for want of a suitable area of investment. He knows bugger-all about the numerous processes in his diversified company; if he did, he wouldn't have the brains to know where to start improving them. He has had a play on the stock exchange and he uses his company as a means of having a gamble. However, this gamble is a zero-sum game, at which he is just as likely to lose as win. What is he to do?

For a start, he will negotiate a massive package of benefits for himself to protect himself against the inevitable end of his tenure. The he will surround himself with yes-men or women, usually half his age, whose lack of experience and whose subservience ensures that his decisions won't be questioned or analysed. After this comes the rationalisation. Regardless of how small the percentage costs of the workforce, that's where he must start. You may argue that that's exactly what the last bloke did, and the one before him. But he can prove conclusively that the last bloke was an idiot; after all his "reforms" didn't work.

Now, when you cut down on your workforce, you don't start by investigating where work can be done more effectively or where processes can be improved – that's too slow and uncertain. The reverse process is the way to go. Decide how much you want to save, and how many you would have to sack to achieve the "savings". Do not –and I repeat, do not – ask how your business will be affected by the sacking of experienced people. That is a question for your minions to tackle. You can be sure they won't tell you it can't be done; all the ones likely to tell you that have been sacked long ago by the last managerial genius.

The most likely outcome will be further outsourcing to the cheapest and probably most inept contractors. Their services, however, will be under a different heading in the balance-sheet to in-house labour. If you are clever and experienced, you will already have hired some public relations gurus – they, too, can be on contract – to deal with the inevitable PR disasters which follow. All this will not affect you adversely; your golden handshake is assured by a board of directors which wants to follow in your footsteps.

So, why is this different to the old days of stable capitalism? Here goes:

- All management is short-term financial
- All bosses have minimal personal responsibility.
- Shareholders are speculators with as few long-term interests as managements.
- No-one in the hierarchy is interested in any technology other than computers.
- There is no peer review of decisions because all decision-makers are equally incompetent or venal. Think of the National Safety Council debacle.
- If there are effective or innovative competitors you buy them out. Indeed, that is how you built your first company, the one you were head-hunted from.
- No-one is nowadays expected to jump out of the top-storey window just because they have ruined a multi-billion-dollar company. Doesn't everybody? Besides, windows in air-conditioned office buildings are double-glazed and can't be opened.
- If things go really bad you declare yourself bankrupt. You don't even have to worry about paying employees' entitlements. In the worst case there is always Majorca.

The title of this talk is conflict of interest. I don't mean just the sort of conflict which allows the chairman of the AFL to also be CEO of Spotless which manages the Colonial Stadium. I mean the conflict which exists everywhere where powerful individuals are put in charge of great enterprises only to pursue their personal agendas. O, for the old days of the Krupps, the Thyssens and the Fords who had a personal interest in keeping their industries alive!

DIATRIBE 81 - Learning To Cope

During World War II General Patton made quite a name for himself when he walked through a field hospital full of shell-shocked men, stopped in front of one of them, slapped his face and screamed at him to "pull himself together". It was ever thus. Illness, particularly mental illness, was always taken far more seriously when it happens to "executive" types than when it affects those of "lower" class, who can always be assumed to be shamming their symptoms. Thus well-publicised 'executive stress' requires careful medical attention, whilst a labouring breadwinner with a large family is clearly expected to cope with the loss of his or her job, income, dignity and the odd limb.

Women, in particular, are great and vulnerable targets for being accused of suffering from imagined disorders. Even repetitive strain injury was widely discounted as being a psychosomatic disorder and therefore not to be taken seriously. Many of the disorders supposedly in the mind somehow never occurred in the pre-industrial age, although diseases like arthritis were certainly rampant throughout history and pre history. Of course, the mind has a lot to do with it. In my experience, the tenseness and fear associated with RSI certainly seems to have created a background which exacerbated occurrences in particular areas such as typing pools where RSI equalled joblessness.

But even if a physical illness is due to stress, its pains are just as real as if they were due to visible injury. Those sitting in judgement over "Mediterranean backs" and disorders related to women's' menstrual cycles, are often people who themselves find it hard to cope with even slight problems with their health. For instance, the politicians who have discounted dental health services clearly have never had a real and persistent tooth-ache, or they wouldn't regard dental care as a luxury. We have a wonderful example of an obese polliie claiming – and receiving – massive damages for falling off a bike.

Increasingly we find ourselves subject to a whole industry which denies the very real disorders which afflict people or, conversely make fortunes out of treating these pains instead of treating the disorders. For all I know, some factories may still have a first-aid cupboard which has analgesics by the kilogram for workers to help themselves to. Often this leads to addiction, as the stomach disorders brought on by the pain-killers are in turn treated with the same pain killer.

Let me go back to the lucrative business of making people cope with their very real pain. Remember Sigmund Freud? The patients he reports on, women locked into the stifling atmosphere of middleclass Vienna, found themselves in what they felt were intolerable situations. The good Dr.Freud found what he thought were ways of discovering what was wrong with them and their "hysteria". Whatever solutions he had, they certainly didn't include the obvious one of prescribing a change of environment. Like Patton who felt that men who had experienced hell should "pull themselves together", society decrees that the fault is in the individual, rarely in society. I have even seen material published by unions which says that it is the task of unions to teach workers how to cope with the stresses imposed on them by what are called demands of the present times – a far cry from the days when unions were expected to oppose and abolish such unnatural demands of an oppressive system.

Western medicine has certainly been able to produce miracles, particularly in dealing with and even avoiding pandemics. However, we should bear in mind that many of these are due to the body's inability to deal with the

results of unnatural living conditions. People following the traditional hunter-gatherer lifestyle are rarely afflicted with disorders such as vitamin deficiency or even cancer.

Undaunted by the reality which imposes pain on us, the drug industry produces ever new drugs to help us overcome our perceived shortcomings and invents new disorder names. Ministering to these with expensive mind-altering drugs is good business. There are large areas of medical science and practice where a relatively small effort would have tremendous beneficial results for large populations. This is particularly true in the Third World, which lacks good water supplies, proper sewage disposal and other aids to elementary hygiene. All this could be easily provided for a fraction of the military budget of these states.

This brings me to a subversive thought. It is often said that failure to provide such elementary necessities is due to a warped sense of priorities. This is simply a warped way of looking at reality. The corporations who control our lives have nothing to gain by raising our health standards. On the contrary, their greatest interest lies in treating and ameliorating symptoms, while preferably not killing their patients prematurely. The business of large-scale disease prevention remains the business of the state.

There is, however, a puzzling apparent exception to the fast buck policy pursued by major drug multinationals. This lies in the most hi-tech area of medical or rather biological science, the mapping of the human genome. The race is on between a private company, Celera, and a US government sponsored university, to see who can do it first. Indeed, as I speak, Celera should have "got there", using a statistically dicey method. Where will they have got? Nowhere, from the financial point of view. After spending well over a billion US dollars on the technology and goodness knows how much on patents, they have what amounts to hundreds of volumes of listings, but not the faintest idea of which gene does what.

The mystery goes even further. When you think of what diseases are based largely or entirely on genetic problems, you finish up with a very small number relatively, say, to the number of people killed in car accidents. Knowing that there is a gene which leads to a propensity to a disorder doesn't mean that it will necessarily lead to that disorder or that you would know how to avoid it. About the most direct benefit would go to an insurance company, which could discriminate against individuals by increasing premiums or refusing cover. This would be bizarre, given the risks which people take by behaviour unrelated to their genetic inheritance. Even with disorders known to have a genetic component, such as Down's syndrome, so far it is not known how large the component is; in the case of Down's, the age of the mother and even the father seems to play a role.

Nevertheless, the hucksters flogging hi-tech bio-technology have already made up their minds that the new data will revolutionise medicine, although as is usual with such claims, they can't tell us how this revolution will happen or what an individual will have to earn to have the revolution made available to them.

There is one side-effect which affects us all much more subtly. Despite being surrounded by allergens and carcinogens inflicted by industrial society, and stress caused by our inhuman system, we are being persuaded that if we feel sick or inadequate it's the fault of our forebears, who supplied us with the wrong genes, or the result of our incorrect attitude, or having been born on the wrong day. Anything, as long as we don't relate it to our environment or our social system. In this respect, researching and mapping the genome is highly profitable to our masters.

DIATRIBE 82 - Decoding The Hype About Decoding The Human Genome

Did the earth shake for you last week? No, I am not talking about the GST. I am talking about the mapping of the human genome, the completion of which has been announced with a fanfare which ought to be reserved for worthier projects like, for instance, the abolition of war. And, no, there does not appear to be a single gene responsible for war, or capitalism, or any number of catastrophes.

What is the genome of an organism? It is the chemically stored information which allows the organism to be recreated and to multiply. Because this information is present in every plant cell, for instance, we can take a cutting of a plant, stick it into the ground and it will continue to grow with the same characteristics as the original plant. The genome is a group of four chemicals in a variety of sequences which define the organism.

Having said that, no-one knows how the genes in the organism lead to this definition. The genome is like a message stored in any other digital code. Nobody knows as yet what each word of the message means, or how the language translates itself into aspects of an organism, let alone which aspect it represents. Nor is the genetic message all that is necessary to create the organism. When you look at a leaf of a tree or fern and compare it with another on the same plant, they are not identical any more than are the fingerprints of your right and left hand. The millions of nerves and blood-vessels in your body all follow rules which can be mathematically simulated, but they are not identical. Even after birth, organisms constitute themselves depending on the experiences of the organism, thereby building up further essential information. This is most apparent in the nervous system culminating in the brain, which in mysterious ways can store incredible amounts of information

which make a computer look sick. This information can be used for making decisions, but also to change the decision-making process itself.

So far, all we know about these processes is enough to make us stand in awe of the complexity of life, but also of the complexity of our own make-up, which allows us to contemplate the complexity of life itself. The concept is that because we have unravelled a tiny further part of the total process, we are now masters of the whole. This is now touted as a break-through. If those having succeeded believe this themselves, it merely proves they are a pack of greedy idiots. It may be compared to a technical no-hoper finding bits of a wiring diagram of what he thinks is a machine in the gutter, and claiming it will allow the reconstruction of a machine he has never seen, together with describing its function. It is totally misleading to call the mapping of the genome "decoding". We are many years away from decoding the genome; it may never be done and indeed it may not need to be done.

Therefore, even if there were a single gene responsible for a particular disorder, the mere listing of the genome is miles away from its linking with this disorder. In fact it might do the reverse, it might confuse the issue. Methods may well be found which allow us to go straight to a relevant part of the genome from the identification of a disorder or disease. There is a huge amount of so-called junk DNA, genetic code material, the purpose of which has not yet been identified, and which has therefore been labelled as having no purpose; all this gets in the way of speedy identification of the links.

Nature has a way of dealing with errors in our make-up. It is called natural selection, which is similar to testing a machine in practice; if it doesn't work, you will discard it or modify it, until it is suitable. Contrary to common belief, this mechanism can work very quickly indeed. Look at the size of Australian feral cats, for instance, monsters which after a few generations have developed the ability to live off rabbits. Biologists have found that, over a century, the leg length of sparrows increased by 5% in response to an environmental challenge. Studies of Galapagos finches showed significant changes in beak length over a couple of generations to cope with drought.

There have been voices of caution who remind us of previous attempts at eugenics, breeding of people to a purpose. Most of these attempts now look ridiculous, as well as evil, but they give a hint as to what comes into people's minds when genetic manipulation is mentioned. In fact, the idea of cloning entire organisms is closely allied with the mapping of the genome.

You might remember the story of George Bernard Shaw, who was talking to an actress who suggested that they should have children together. "With my beauty and your brains we could hardly go wrong". "Not so", he said, "what if they inherit my looks and your brain?". Given half a chance, to-day's yuppies would want to breed anorexic supermodels or amoral stock-brokers, in short, the fashionable role-models at whatever time the breeding takes place. Insurance companies will insist that inherited disorders should be bred out, and so on. Because, let's face it, the whole exercise is about money.

So what about the phasing out of diseases? As we discussed, most serious genetically transmitted disorders phase themselves out through the natural selection process. Given the cost of taking a new drug or procedure to the point where you can sell it, generally millions of dollars, it is unlikely that drugs for any rare disease will be developed. It isn't hard to predict that in the foreseeable future we are looking at a brave new world scenario of discarding embryos suspected of having even minor "blemishes", and breeding to a formula.

There will also be a new fillip to the spate of research which tries to pin every conceivable trait to a genetic origin. A book published last year, for instance, claimed to prove that rape was a response to some men's inability to find sexual partners for perpetuating their genes. This sort of assumption is nowadays taken seriously, despite the fact the objects of rape are by no means always women of fertile age; homosexual and anal rape are equally common. Animals, too, are credited with incredible insights which favour the continuation of their genes; even if in the next breath they are declared to have no consciousness.

While I wouldn't bet on the genome-plotters getting their money back in the short term, their ability to patent the map or parts of it, throws an interesting light on the US patenting law. The concept of patents in the past was always that the inventor had to demonstrate the usefulness of any invention. Thus, you couldn't patent mere concepts, mathematical formulae or scientific principles or, indeed, items of common knowledge. This seems now to have been overturned, and the various cloned creatures manufactured by recent science apparently carry patents, as do seeds and plants. This is capitalism run riot. The process of doing this relies on the fact that valuable patents not backed by billionaire multinationals are worthless, while worthless ideas can be patented as long as there are rich backers. In fact, if you want to take out a patent on anything nowadays, you can kiss \$50,000 good-bye for a start. On the other hand, the World Trade Organisation which will hold its next meeting on Sept. 11 in Melbourne, now has the clout to force all countries to accept the notion of the patenting of organisms. That's what the genome-plotters are counting on. We are just a stone's throw away from multinationals asserting the right to actually own human beings in a way never dreamt of by the slavers of past history.

Finally, think of the widespread disorders you are familiar which cause misery and death. How many are caused by faulty genes? Offhand, I can only think of one, namely arthritis. As for the rest, many are caused by the conditions of modern life, by eating the wrong food, and breathing polluted air. Vastly more lives have been

saved by proper hygiene than by anti-biotics. This is not an argument against modern medicine; it is an argument for keeping things in proportion.

Even the growing of embryonic cells for spare parts, which, on the face of it, seems to offer profound possibilities, has a cloud hanging over it. Who will be able to afford it? And why should such complex procedures even be considered while sick people are being sent home prematurely for lack of a hospital bed? On the other hand, do religious people who object to these procedures because they involve discarded embryo cells, object to training people for war with its barbaric implications for fully formed viable human beings? For the time being, at least, let's leave genetic modification to nature. And let's make sure that the human genome is not misused as yet another way of to practise discrimination on workers, sick people and the "financially disadvantaged".

DIATRIBE 83 - The Same Old VFT

Does the acronym VFT mean anything to you? In the late '80s of what is now the last century our then undisputed king of transport, Sir Peter Abeles' well known for his close connections ranging from the CIA to his "mate" Bob Hawke, and Bill Kelty his partner in wiping out the Air Pilots Union— not to speak of sporting sundry US Mafia connections – came up with a scheme for a Very Fast Train connecting Sydney and Melbourne.

This might have appeared odd to most people. After all, Sir Peter owned half of TNT, Australia's then biggest interstate trucking company, and through them Ansett Airlines, thus tying air and road transport in a neat monopoly. Why would he want to water down these valuable holdings by competing with himself? For the sake of his jittery shareholders and the financial press, Sir Peter made it clear that his scheme had little to do with transport. It was to be a huge land scam "opening up" the Eastern Seaboard by making it "more accessible". The last thing he wanted to do was to rationalise interstate transport.

Of course, this rationalisation is precisely what Australia needs. If you had one hundred railwaymen for each goods-train to keep it on the rails, heaven and earth would be moved to get rid of them. Yet this is precisely the situation with current road transport. One driver per truck, vastly more fuel use than locomotives, much larger maintenance costs, longer travel times, and a horrendous accident rate due to overworked owner-drivers running with no effective supervision. Independent estimates put the cost of freight transport per ton/kilometre at about ten times higher on roads than on rail. All it needs is an upgrade of the rail system by straightening out and strengthening the permanent way. The total cost of that, for the Sydney-Melbourne stretch, has been estimated at about two billion dollars.

A lot of money? As much as four city buildings, a couple of Collins-class submarines, less than half the cost of a corvette. So, why hasn't this been done long ago? Because the corporations make a lot more money the way things are. Road-building is a massive money-spinner, and is almost completely subsidised; fuel for trucks comes cheaper; because of the insane competition between owner-drivers, their labour comes for next to nothing. Hospitals, which are filled with road victims, are run by the state, or, by an irony generally lost on the public, are provided by Mayne Nickless, one of Australia's large road freight companies. They get you coming or going, so to speak. As for road taxes, forget it. Each semi-trailer uses literally millions of times more road maintenance than a private car. Australia's road system is a way of channelling private funds into massive corporate gain.

So what's this about a Very Fast Train? When Sir Peter raised it, was as a land scam. But that explanation was for consumption by the financial world. The glossies talked about something quite different. It was to be a 350km/hr technological marvel, getting to Sydney in 3 ½ hours of scenic wonderment, but still providing all the important needs of the businessman (and presumably woman) such as fax, and video-conferencing. It would cut a swathe through Victoria's alpine country with earthworks of a magnitude of the Snowy Mountains scheme, but thoughtfully providing passageways for animals wanting to get through to the other side. Presumably these would be indicated by suitable signs familiar to wombats, possums and the odd bilby. The noise levels would be quite acceptable as long as you kept far enough away and were happy to accept levels nowadays prevailing in suburban streets throughout what were formerly peaceful valleys. Fares would be around air-ticket levels and research had shown that that would be acceptable. No, you wouldn't be able to take your car. No, it wouldn't carry freight except light parcels.

For providing such a bonanza to eastern Australia, we, the public, would have to show a little generosity The new system couldn't pay award wages; special contracts would need to be negotiated. Electricity would have to be supplied at a massive discount (in those days all of it was in public hands). And the whole scheme had to be guaranteed by the States.

The laws of nature had to be bent somewhat; just a small contribution from God wasn't too much to ask. European systems like the French GTV run at around 280km/hr. The VFT was to run at 350km/h, a speed only achieved experimentally in France but, miraculously, the VFT fuel consumption was quoted as the same as the GTV when even by simple extrapolation you would expect it to be 50% higher. Maintenance, consisting of keeping tracks and overhead wires straight and level, is difficult enough with the GTV and the Japanese bullet

trains, but would be a nightmare at 350km/hr average speed, particularly given the temperature range the system would have to work over in Australia. Not only the technology but the trains themselves would be imported.

None of these publicly raised questions were answered by the initial consortium. Nevertheless, politicians, real estate sharks and others hoping to benefit, jumped readily on the bandwagon. Techno-freaks like Barry Jones gave it full support in the ALP. The federal government even passed laws for compulsory acquisition of land, some of these actually affected land-prices along the original inland route. The project only died a natural death when it was realised that the financial sums didn't add up. Unless the ticket sales amounted to some 80% of capacity, the investors' returns wouldn't be attractive. With a debt load of some \$5 billion the risk was too great. Coming at the end of the '80s when financial schemes were biting the dust, no overseas backers could be found for what could have been yet another disastrous failure. Those of us opposing this madness breathed a sigh of relief; not for long, because we were soon faced with another disaster, the so-called multi-function polis. We Victorians managed to avert this disaster too; it was off-loaded to South Australia where it literally perished in the swamps.

Why am I bringing all this up a decade later? Simply because it is all on the agenda again. This time it is starting with a Sydney-Canberra link; apart from this detail, everything else is the same. The train is still the French GTV, tenders are already out for construction, there is still no freight-carrying capacity. The only change is that this time around, knowing that this concept is not likely to find acceptance with the general public, it has all been done very quietly and there are no glossy booklets. The people pushing the scheme seem to have made sure that technically competent people will not be allowed to look into it.

To draw a red herring across the trail, as in the case of the earlier VFT, there was a technical feasibility study which again considered the Mag-Lev, a vastly expensive train which cuts friction by rising off the track by magnetic levitation. Predictably the study found, as did the earlier one, that the thing was too costly and only existed in the form of a 40 km experimental loop in Europe somewhere. They also rejected tilt-trains, which give passengers a false sense of security by eliminating the effects of the centrifugal force when going around curves.

So, if you hear that at last there is going to be some money for railways, don't get too excited. If it was any good, the roads lobby would never let it get off the ground. Meanwhile, the same lobby will persuade us, as they have done since WWII, that trains are no good because on the Melbourne-Sydney trip a car can beat them using the freeway, while the train limps along a track with an alignment resembling a snake in distress. Before the war, the old steam-driven Spirit of Progress travelled at a steady 120 km/h. It can no longer do this because of the state of the standard gauge track. Also, we can't run ordinary suburban railways without collisions and derailments. There's privatised progress for you.

We don't want technological miracles. All we want is a decent transport plan for the whole of Australia which will transport people and goods cheaply and efficiently. However, in a country run by unbridled capitalism, this is obviously too much to ask.

DIATRIBE 84 - The Technology Of Violence

What has the latest technology added to the range of measures available to oppressive authority? Not a great deal, but it isn't for want of trying. The current purpose of official physical violence in Australian crowd "control" is rarely an attempt to kill, although that is often the outcome elsewhere in the world. In general, the purpose is to intimidate and provoke.

If you have never participated in a demonstration, take it from me such physical intimidation works. When, as happened in the '70s Springbok demonstrations and in the Canberra Aidex protest (amongst others), you see people dropped on their heads and having their limbs broken in front of you, when you see a marching troop of black-uniformed goons deliberately knock down a bloke on crutches and then walk over him, you think twice about turning up for the next demo. Similarly, threats of sacking and academic sanctions also have their effect.

There is no such thing as organising a peaceful demonstration. Whether a demonstration is peaceful or not isn't up to the protesters. With all Australian demonstrations so far there has never been violence initiated by protesters. The very definition of violence is at the mercy of officialdom. In Australia, the term violence is generally applied to property damage by protesters, while even serious injuries through police and goon action are treated as trivial. This isn't peculiar to protests; the law in general is far more sympathetic to property than to the person. Even with this proviso, there are generally far fewer arrests at demonstrations than at sports meetings, despite the much more lenient treatment at the hands of the police of sporting hoodlums.

There are, however, new elements to official violence. That's where technology comes in. Let's make a list:

1. Capsicum sprays. These are already used by the forces of law and order around Australia. Although ostensibly designed to subdue violent individuals, they don't seem to work too well in such situations.

Capsicum sprays are used as a means of intimidation and punishment. In a recent Honeymoon mine protest, police put protesters into a paddy wagon and then sprayed them with capsicum. If people suffer from respiratory illnesses, such a situation can actually be lethal. The same goes for tear gas, rarely used in Australia because batons are so much more effective and can be used selectively.

2. Rubber bullets. Although these sound benign, at close range they can be lethal. The projectile is about the weight of a cricket ball and the speed is far higher than that achievable by a bowler. Overseas, where the use of rubber bullets is routine in some countries, many victims of rubber bullets have been killed or maimed.
3. Pressure points. A torture specifically developed for peaceful sit-down protesters. By compressing specific nerves, particularly around head and neck, unbearable pain results and even death can be brought on.
4. Water cannon. A special truck is fitted out with high-pressure pumps similar to those used by fire brigades. While a human could not hold such a nozzle, because the reaction would knock them over, there is no such limit when the nozzle is mounted on the truck.
5. Horses and dogs. An ancient yet effective weapon in the hands trained brutal people. Although used mainly for intimidation, (dogs were used in many demonstrations for this), there is no doubt that police would not hesitate to use them in earnest. At the Bush demonstration ten years ago we actually saw a policeman ride down a demonstrator in Cossack style, swinging a baton instead of a sabre. At an earlier demonstration, a woman had a leg broken by a police horse.
6. Batons. Whereas the old rubber baton, which had a lead core on a spring for added impact, was relatively benign, the current long stick is pretty lethal, particularly if used around the head. Held with their end pointing forward by police and TRG thugs, accompanied by a rhythmic chant of "MOVE, MOVE, MOVE", night-sticks can be very intimidating, particularly to the elderly, against whom they are routinely used.
7. Firearms. Never so far used on Australian demonstrators by police, although routinely used by goon squads on the mentally ill. Unless things have changed recently, the bullets used are "soft-nosed", a euphemism for what used to be called dum-dum bullets. The nose of these bullets virtually explodes on impact, tearing body tissue apart. Besides, police are trained to always aim for the body area where such bullets have horrific consequences. A man shot in the shoulder 20 years ago died within ten minutes. Although so far never used in demonstrations, firearms are routinely carried to intimidate.

The other secret weapon is media compliance. If you were unfortunate enough to listen to commercial talk-back radio during the last Bush visit, you would have heard a horror story of demonstrators running riot, together with exhortations to police to be tougher, presumably by massacring everybody within sight. It is this element which is currently calling for the army to be called out for the Olympic Games.

During the Wapping demos against Rupert Murdoch, the TV coverage included a shot of stone-throwing demonstrators followed by a police charge. The truth was the other way round. An unprovoked police charge so enraged demonstrators that they started to throw stones - a classic piece of provocation. By reversing the order of the shots, media created the effect of blaming the protesters for starting violence.

The question now is: In the forthcoming s11 and Olympic Games periods, how are the authorities going to react? At the risk of getting massive egg on my face, here are my predictions:

Firstly: The occasions are different. S11 will display the might of the forces of law and order. The media-largely financial- will view us as a third-world country which we are and expect the natives to be kept firmly in check. The paramilitary have already semaphored their involvement and their intention to prevent any repetition of the Seattle debacle. They are itching to use all the means at their disposal and to try some not previously used. Bring your raincoats against water cannon and, if you have them, swim goggles. Use of tear gas would not surprise me.

Other weapons are the highly sophisticated means of communications. With police HQ across the bridge next to the Casino, and the warren of the Trade Centre adjoining, the forces of Law and Order can keep well out of the way until called when it is time for the boots and all bit. Also, the ALP has already instructed their unions to stay away, which means Bracks wants open slather for a massive attack. The pretext for this is that organisers cannot rule out violence. How could they, when it is always started by police? Media, heavily involved with Bill Gates and Co, on behalf of the Murdoch-Packer axis are unlikely to be unbiased, let alone sympathetic.

The Olympic Games are likely to be treated more benignly. The world's media will be attending and undue violence is unlikely. The venues are diffuse and the times vary. There has not even been a call for a boycott, let alone for major disruption; besides, they are likely to be an organisational shambles anyway, with spontaneous protests at disorganisation and inefficiency. One hint has already been given by saying that events may be delayed due to the expected transport shambles. Great prospects for TV schedules!

DIATRIBE 85 - The Curse Of The Call Centre

The shenanigans around the Ambulance Emergency service have made it look as if incompetence and mismanagement alone were to blame for the disastrous delays and life-threatening blunders which pervaded in particular the early days of this debacle. Now I'd hate to be seen as a defender of the crooks in Australian and indeed world-wide management. But, in this case, there is a clear connection between managerial incompetence and technological innovation. But, first, let's look at why call centres are the fastest growing sectors in the economy, to use stock-exchange-speak.

A call-centre relies on some fairly new aspects of old technology. The first is the advance in telecommunications, which has led to a reduction in the cost of long-distance telephone calls and data transmission. Cheap data transmission has enabled centralised management systems; for instance, the entire accounting function of the Commonwealth Bank is now centred on Sydney. Incidentally, the actual location of these centres depends on the whim of managers; it would be just as easy to relocate them to the moon, if this was acceptable to top management. It never is, because as yet you can't play golf there.

Concentrating management functions in one location is equally easy. As most information is held in electronic storage, it can be accessed from anywhere. The old idea of looking up books has disappeared years ago. So, if you want to know the state of your bank-account, you can do that from anywhere, and that includes from home. So why not do it from your local branch, assuming you still have one?

That's where a nifty bit of mathematics comes in. If you serve, say, an average of six customers an hour in a shop, this doesn't mean one comes in every ten minutes. Besides, they don't take a measured ten minutes each to serve. However, a branch of mathematics called queuing theory allows you to predict the probability of customers being served within a given time from the moment they enter. Most of this is meaningless when there is one assistant serving in a small shop. It does increase in significance the more customers there are being handled, and the more assistants are employed.

The reliability of these figures depends on a number of factors; chief of these are the variability of the time it takes to serve each customer and the conditions which lead to an increase or decrease in the number of people calling in.

There are other factors which result from the very system itself. For a start, customers are likely to be already hostile when they get onto a human being, after being put through a multiple-choice examination as to what they want, some of which information they have to repeat to the person serving. The frustration of being attended by someone in Perth when you have an enquiry relating to some local matter in one of the Eastern states' suburbs the Perth assistant has never even heard of is likely to raise your hostility to a point where you aren't going to be totally coherent in explaining what you need. This would vary with the time of day, the temperature and the humidity.

All this conflicts with the call-centre concept. Indeed, call-centres have led to a revival of the old notion of Taylorism, which aims to standardise both worker and work. Although – no matter what some academics may claim -- Taylorism has never worked in factories, a call centre is the "ideal" place for testing such bankrupt theories once again. Your work is allotted by a machine; your call is monitored by a machine. By listening in to your transactions, the supervisor can ensure that you use only the standardised responses. This work is so intensive that the women who do it – there are few men – get burnt out very soon; the average labour turnover is 30% to 50% per year, and each replacement costs thousands of dollars to acquire and train. No-one can tell whether this method of answering customers' questions is efficient even in capitalist terms, because few if any figures are available as to how much it cost to use the old decentralised method, which added human contact to the transaction.

Furthermore, given the "labour intensity" of the call centre, it is likely that this activity, too, will be, firstly, contracted out (much of it already is) and secondly transplanted to somewhere like India where there are lots of people with reasonable good English and low income expectations. This, too, has already happened. Even voice recognition systems which eliminate the human operator altogether are under way.

So, while no-one can tell on the face of it whether call-centres actually are profitable to employers as against decentralised information services, the handing of emergency service calls is another thing entirely. Traditionally, emergency ambulance calls were handled by officers with long experience in the service. As I understand it, these people had been on the road, attended to the sick and injured, and their expertise ranged from knowledge of traffic conditions and para-medical experience to a fair amount of psychology relating to the state of mind of those reporting emergency situations. No doubt they sometimes made mistakes, but at all times they were doing their best under often traumatic circumstances.

The only automation introduced by Intergraph appears to have been the large screen which displays a map highlighting the actual location identified in the call. While this saves a few seconds compared to looking up a street directory, it would do so only in the rare cases the location isn't already known to the officer taking the call. The rest of the information required to deal with the call, including available hospital beds and casualty

availability, first aid procedures, likely delay times and so on, has to be supplied by the ambulance officer from experience backed up by available current data. Yet it appears that the automatic map so dazzled the bureaucrats in charge of the system that they immediately assumed that it would greatly speed up the system.

This may well have been reinforced by the officers themselves; workers are notoriously incapable of assessing the complexity their job entails. For instance, so-called housewives regard their job as unskilled when, in fact, it contains vastly more decision-making than the job of an executive in an industrial situation. Almost invariably, workers interviewed about what they do all day tend to limit themselves to a handful of items that come to mind. As a typical example, street transformers were regularly removed for inspection by the old SEC; when the privatisers' bean-counters "analysed" the maintenance task, they boiled it down to "changing the oil" and promptly decided it could be done without removing the transformer. Thanks to this nonsense and a long dry spell, there was a phenomenal increase in power failures when the system was first privatised.

Similarly, the people first "analysing" the emergency service probably started from first principles. The first principle of the present-day manager is to ignore history and experience because "everybody knows" that in the past all management was stupid and all workers spent all their time leaning on their shovels. The public enquiry showed that after destroying the old system of handling emergency calls and finding that the new system didn't work, they concentrated on proving that it did. Any call that spent too long in the pipeline was re-entered at the beginning of the process, and all reference to it was simply struck from the system. After all, the purpose of the system now was not to help people in distress, but to meet the specification and avoid penalties provided in the contract. The system of not recording excessively slow calls and of putting through "instantly answered" phoney calls certainly managed to improve the statistics. When the situation could no longer be pushed under the table, sixty additional staff members had to be employed to make the service workable. This is where the contractors lost interest and offered to hand the contract back to the Government, and the Government in turn decided to abandon most aspects of the long-running enquiry.

From our point of view as people who need an effective emergency service the main question is not who is at fault, but whether a call centre with over-worked semi-skilled staff can be used to meet this need. After all, we don't want to be made reliant on what Dick Smith called "affordable safety" in this or any other area of vital service. The wider question is whether we should be prepared to accept the diminution of service and denigration of humanity implicit in the call-centre concept in any area, private or public.

DIATRIBE 86 - Deception By Numbers

Recently the ex-headmaster of Scotch College let us know that in his opinion "boys learn quite differently from girls", whatever that may mean. While, possibly, the sort of boys accepted into his school may have been bred to a stereotype, one would hope that even they may have some individuality.

Nowadays such stupid generalisations are not often heard from educators and politicians; there is a much better way to fool people. It is generally referred to as "statistics". I should add that statistics is a respectable branch of mathematics. Even though some of the nonsense statements of politicians are based on sound statistics, it is their misuse which is used to deceive us.

Take the recent claim that the average wage is now \$836. Do you know many people who actually earn this wage? Of course not. This figure is inflated not only by workers who get lots of paid overtime – remember Peter Reith's parrot cry "70,000 dollars" as the wage supposedly earned by wharfies for leaning on non-existent shovels – but if they did get it, it was for double shifts. Also added into this figure are the 7-figure pay-outs to CEOs of large corporations. Averages are quite meaningless when it comes to figures as disparate as the incomes of the rich and the poor. If someone spends half their year in the tropics and the other half in Antarctica, you would hardly say that on average they live in a pleasant climate.

There are many ways of analysing incomes. For instance, there is the mode which describes, in the case of incomes, the wage received by the most numerically representative group. Even this doesn't tell you much. Let's go back to our headmaster. The averaging out of educational outcomes according to gender and social groups has, for instance, in the past led to suggestions that girls and women shouldn't have their and their teacher's time wasted by being taught mathematical skills, because on average, they didn't do as well as boys. Did this mean that the best girl student did worse than the worst male student? Not on your life. It was simply yet another handle to save money on girls' education. Conversely, nowadays when boys, on average, do much worse than girls, no-one suggests that boys should not receive education – as it is called – but simply that there should be remedial education for those falling behind.

This makes my point. There is no analysis in the statistics, but they can be used to support all sorts of nonsense. If they make sense, they can easily be ignored. That's what happened to Robert Owen, when he produced impeccable figures in 1815 or thereabouts at a meeting of mill-owners, to whom he pointed out that his own mill, which was Britain's largest and most profitable, was so lucrative because, unlike his peers, he didn't use child

labour and didn't sweat his workers – old and young – for 14 hours a day as they did. It was a case of “my mind is made up, don't confuse me with facts”.

So, what has all this to do with technology? A hell of a lot. While the sort of statistics which makes it to parliament and the media has been around for centuries, the advent of the computer has made statistical misconceptions and deceptions easier to create – a lot easier, in fact. At the press of a button, a table of meaningless or distorted figures can be turned into an impressive 3-D graph with absolutely no relevance. I have actually been at a presentation where one of the graphs projected on the screen had an axis labelled wrongly; this went completely over the heads of the people assembled there, who were supposed to draw conclusions from the presentation. People with skills in assessing tables of figures don't need graphs, particularly if labelled incorrectly. That also goes for those misleading graphs so beloved of financial statistics, where the bottom axis is not zero, which makes a few percent change appear like a massive variation.

Universities nowadays demand statistics as part of social science courses. This may be relevant in some cases, but usually is not. More commonly it is used to reinforce long-held prejudices, as in the case of the headmaster's interpretations on gender differences mentioned earlier.

The best – or worst – example of this is so-called “intelligence testing”. Although some psychologists insist that these tests are culturally neutral, this is not within their power to determine, because the whole of their thinking is culturally loaded. Indeed, the origin of the IQ test lies with an unscrupulous scientist, Cyril Burt, who invented data to suit his ideas, so the entire concept of quantifying intelligence is based on a lie. I once asked a psychologist why the profession used a concept which had been born in proven deception, and the answer I got was that if they didn't use it they would have to invent another equally flawed one. You can see it all in the MENSA group, which kids itself that they are the upper one percent of humanity's thinkers, when in fact they are simply good at solving certain puzzles. I ask you: if they were really clever, would they want to hang out with this sort of self-important mob?

So here is a first-class example of the present-day obsession with quantifying everything. No-one knows what constitutes intelligence, but they have a measure for it. If intelligence means ability to cope with changing circumstances, you'd have to ask what sort of changing circumstances?

Let's go back to statistics. Contrary to the view of politicians who are fond of citing “statistical facts”, the science of statistics is not about facts but about probabilities. There is no certainty that a coin tossed a large number of times will come out 50/50 heads and tails, although the more you toss it the more it is likely that this assumption will be true. The “laws” of physics are only true because they generally represent averages of a huge number of similar events. Water boils at 100C at sea-level, but that does not mean that each molecule of water will turn into steam at this temperature. It is just that a saucepan of water contains an almost unimaginable number of molecules which, on average, tend to change state at 100deg.C.

Human beings don't come in uncounted trillions like molecules, they generally come in small groups, and they are nowhere near as alike as molecules. They are individuals. What is important about humans is precisely this difference. If nine out of ten film-stars use Palmolive Soap, it may be important to find out why the tenth film-star doesn't use it.. Perhaps they don't wash? Besides, the hucksters don't tell us whether it is nine out of every ten film stars. Seriously speaking, what the proponents of human statistics want is to suggest to us that our aim in life should be conformity; the notion of wanting to be different is now less acceptable in society than ever before. Kids' books are full of stories of ducklings which fancy singing like lyrebirds until experience teaches them to quack like all the others. After all, statistically we can show that 999 out of a thousand ducks quack like ducks, so why bother about the one that doesn't? This is why our society finds it harder than ever to cope with individuals with physical or mental disabilities, although the Paralympics may have taught us a lesson.

So, next time some politician or General Manager presents you with some statistics, don't stare mesmerised at the set of figures. Ask yourself about the motive for using these figures, analyse how they were collected, and ask why the “facts” contained in these data couldn't have been put into plain language. Question the precision of the figures given; for instance, a survey of 105 people cannot give you figures accurate to the nearest percent.

If, on average, there are 10 burglaries a day, a figure of 20 in any one day is not a crime-wave, although the papers will tell you so. Nor is a doubling of the “road-toll” on any one week-end a cause for special alarm; what we should be concerned about are the people who get killed and maimed. Each one represents a tragedy and questions our reliance on private transport.

In short, figures may not lie, but the people who use them often do, and technology helps them to do it. Rather than living in the Information Age, we live in the disinformation age. Blessed are the “information poor” for they may be granted glimpses of reality.

DIATRIBE 87 - Economic Irrationalism And The Environment

Our Minister for Environmental destruction, Robert Hill, left the recent Hague Climate Conference in a hurry saying he had "important matters to attend to". Now you and I would scratch our heads and ask – what could be more important than the future of humanity? You've got it in one – the welfare of the rich, or what is usually called The Economy. Besides, the Hague Conference had to come to an end because the venue was booked for, of all things, an oil producers' seminar.

Mind you, listening to the Government (if you are silly enough to do that), it's all about jobs. 50.000 jobs would go if we were to try and cut down on Greenhouse Gas production to the extent required by the Kyoto Agreement. That's what the government is concerned about, they tell us. Strangely (or not so strangely, depending how you look at it), they are not concerned with the jobs that have already gone from Telstra, or from the banking industry, or from the Latrobe Valley or other rural towns, or from 1001 downsized and outsourced work-places. The jobs the government is weeping its crocodile tears over just happen to all be in the resource sector - timber and coal.

Within this resource area, they are not worried about the four-fifth of jobs in the timber industry which have disappeared due to clear felling and mechanisation, or the huge number of miners thrown out of work due to rationalisation and new technology. The really important jobs, the ones we can't afford to lose, are the ones our government says are important - the ones threatened by conservation measures. Also, we can't really count the jobs created by introducing environmentally friendly technology, so we don't mention them in the first place.

But hang on. Where does the government get its job-loss figures from? From the Bureau of Resource Economics or ABARE. ABARE is not just some Government statistical agency, consisting of fat cats with university backgrounds; No, ABARE is an impeccable set of consultants from industry, mainly the coal industry to be more precise. And why does the government use their figures? It's a lot cheaper than gathering your own, using fat cats from universities. Besides, they give you the right answers, the ones you want.

Far be it from me to imply that there is some sort of conflict of interest in having this sort of body make government policy on matters of the environment; this would only be true if their advice went to an unbiased government. Instead, our government is representative; it represents, amongst other things, the resource industries. And, seeing that it appears to put them ahead of humanity, it seems to represent them very well. But does it?

There is a story about the time during the French Revolution where the guillotine stuck three times, which meant that according to tradition, the intended victim went free. The next in line, an Irish engineer, put his head on the block face up. "Hold on" he said, "I think I can see where it's sticking". This is just what the corporations opposing CO2 limitation are doing, freeing up anything that would slow down global disaster. They can't possibly foretell how global warming will affect them in the long run. Some of them are global multinationals with offshoots in the Pacific Islands which will be submerged. All of them are part of the Australian economy which, in the long run, cannot escape being affected by global catastrophe. There is a good example in BHP, which for decades has been destroying the Fly River system with their Ok Tedi mine, and now wants to unload their environmental responsibilities by selling the mine and, presumably, with it the problems it has caused.

The chances are that they won't find a buyer, just as no-one can find a buyer for the UK nuclear power plants where, similarly, the ultimate cost of dealing with the accumulated wastes and of decommissioning the existing plants cannot be estimated – if indeed it is possible. All these are child's play compared to the problems of global warming.

There is another puzzle. When you or I turn off a light or an electric radiator we know that this will actually put money in our pocket. Yet the economic gurus tell us that on a national scale such savings will lead to unmitigated disaster. Conversely, the quicker they destroy the earth the better it will be for the "Economy". Mind you, we don't have to take this seriously, because it is the wisdom of the resource companies talking; the rest of Australian business may well have a different view.

However, from personal experience I would say that material and energy savings, even now, are low on the list of priorities of our economic masters. This is due as much to ideology as to ignorance. The two go hand in hand. There is no doubt that male engineers and power-brokers are obsessed with power and massive moving machinery. This phallic obsession leads them to regard alternative technologies such as solar power and wind-generators as so-called Mickey Mouse technology, and puts conservation beyond the pale. A fortune awaits the engineer who can develop machinery to impart a thrusting motion to the Eiffel Tower.

This mixture of instinctual primitive exercise of power and self-induced ignorance in our power-brokers is a recipe for global disaster. As any good anarchist knows, human beings, especially men, are incapable of dealing rationally with the levels of power conferred by modern technology on individuals and corporate gangs whose main skills are the manipulation of people and a total absence of humanity and ethics. Indeed, it is questionable whether it is rationality we want – perhaps we need to foster our sense of self-preservation. Those of us living in so-called developed countries should take note of the fact that what is at stake now is no longer just our current well-being, and the temporary advantages to be achieved within the capitalist rat-race. What we need to do is to change our thinking entirely, and realise that even if we do well within the system, the waste involved in the consumer society will come back to haunt if not us, then our children. In short, the problem with the restriction on

greenhouse gas production is not the jobs that are lost in the process. It is a question of survival, if we fail to curb the excesses of modern wasteful technology.

In this, it is insufficient to merely cut down on private consumption. This is always offered as at least part of the solution; it cropped up again recently. Suffice it to say that if every private electricity user reduced their electricity consumption by one quarter this represents about one sixteenth of total generation, because domestic use is only about a quarter of total use. As I said before, what we need is a total overhaul of society. It is because our powerbrokers can't stand the thought of such an overhaul (except when it happens through a depression) that our bosses have sabotaged not only greenhouse conferences, but have made no move to reduce our CO2 production, while flogging our energy resources.

The only ray of hope is that industry research now promotes numerous ways of sustainable energy production, so the good old profit motive may yet kick in where reason and common sense are failing.

This is a further reason why we desperately need a revolution. Meanwhile, don't keep your fingers crossed for the follow-up conference at the end of May. You may need those fingers to write protest letters to those who sabotaged the conference, primarily the USA.

DIATRIBE 88 - At Last – The Good News

A lot of the world's people haven't got enough good food to eat. This isn't due to natural disaster, or a refusal of the earth to supply sustenance in areas which previously had abundant food. Nor is it due to over-population.

We are mainly talking about ex-colonial countries which did quite well until a couple of centuries ago, when some were depopulated by slavery and all were turned away from their traditional subsistence farming in order to earn cash for their colonial exploiters. Even if most of them have shaken off the foreigner, their local exploiters have continued to press for cash crops to pay for their private jets and even more so have run up huge debts to overseas arms dealers. The interest payments have ensured that labour that should have gone into food production went into cash crops sold at the rock-bottom prices affluent nations were prepared to pay. Both these monoculture crops and the technologies used to produce them are environmentally destructive and a bonanza for the chemical companies that sell fertiliser, weedkiller and insecticides.

For every high-tech problem created by western capitalism it usually has a higher-tech answer. To-day, this answer, according to the West, lies in genetically modified foods, seeds for which the bio-tech companies are prepared to sell to people who can afford them. This, where it happens, opens the door to ever larger overseas agri-business. If no-one can afford the seed, or where mechanised farming doesn't work, it means under-nourishment and starvation for the people. Meanwhile, the chemical companies advertise their expensive and destructive wares as "the only solution" to the world hunger which they have done so much to create.

People in the West, even those whose environmentalism leads them to reject the corporate hype, still tend to half believe that so-called alternative technologies are a bit "Mickey Mouse" and will not, in the foreseeable future, create a massive impact on the world's problems. I have to admit to a streak of this nonsense myself. And nonsense it is. After all, chemical farming, for instance, is less than a century old, and during this time, apart from huge profits for agribusiness, has led to salination, soil erosion and has bred pests and weeds as well as monoculture crops.

Changing away from capital-intensive farming doesn't mean the abandonment of science, only it's a different sort of science. In east Africa, maize fields face two major pests and Ziadin Khan, who works at the Mbita Point research station on the shores of Lake Victoria in Kenya, has answers to both these infestations. One is an insect called the stem borer. Its larvae eat their way through a third of the region's maize crop most years. However, Khan has found that the borer is even fonder of a local weed, Napier grass. By planting Napier grass in their fields, the farmers can attract the borers away from the maize. Even better, the weed exudes a sticky substance that traps and kills the stem borer.

The other scourge is a parasitic plant called striga which wrecks \$10 billions worth of maize every year. Weeding it is the bane of African farmers. There, again, Khan has found a weed called desmodium which releases a chemical striga hates. By companion planting maize and desmodium, the infestation problem is minimised.

These sorts of remedies are spreading like wildfire through the fields of east Africa. Trials on more than a thousand farms are finished and the methods have spread to Ethiopia. Dozens of such strategies are transforming the lives of millions of poor farmers across the globe. They replace pesticides with natural predators and chemical fertilisers with animal dung, crop wastes and with plants that fix nitrogen from the air.

Recently, an English researcher, James Pretty from Essex University analysed over 200 sustainable agriculture projects in 52 countries and found that overall crop increases amounted to nearly $\frac{3}{4}$, something that the genetic manipulators could only dream of. At the same time, use of locally available technology often benefits the environment.

The success of sustainable agriculture puts paid to the myth that modern techno-farming is the best or even the only way to increased yield. In Mexico, a hectare planted with a mixture of maize, squash and beans produces 1

¾ times as much food as the same area planted with a maize monoculture. The difference comes from a reduction in weeds, insects and diseases and more efficient uses of water, light and nutrients. Hans Herren, head of the International centre for Insect Physiology and Ecology in Nairobi says that what Africa needs is investment in “soft” biotechnologies such as alternative natural pesticides. This isn’t exactly news to us. After all, Australia has its own example with the beetle which keeps Prickly Pear in check without pouring chemicals into the countryside.

Using local experiments, a local Catholic Priest in Madagascar has found that by using a different planting regime the yield of rice can be multiplied by a factor of four. The regime involves transplanting seedlings earlier in the season in smaller numbers so that more survive, and using compost rather than chemical fertilisers. 20,000 farmers in Madagascar have adopted the idea. In test, China, Cambodia and Indonesia have also improved rice yield using these methods.

In Cuba, change to organic farming was forced on farmers by the collapse of the Soviet Union which had supplied Cubans with high-tech farming methods. The nutrition standards in Cuba are now back to what they were before the Soviet collapse. Of course, return to oxen after tractors had been used for decades appears a retrograde step, but it has actually not only improved nutrition but also cash income.

Some of you may remember our own permaculture scientist Bill Mollison. Bill insisted that better crops could often be grown if the soil was not broken up by mechanical means; after all the world’s rainforests, vast grasslands wetlands all manage to proliferate without soil disturbance other than by plants and burrowing creatures as well as the mulch from decaying vegetation.

In Latin America, these methods are now coming into their own, as small-scale farmers are throwing away their ploughs. The results: reduced costs, higher grain yields and increased income. Zero tillage also benefits the planet. Unploughed soils hang on to carbon which would otherwise escape into the air as carbon dioxide when organic matter rots.

Small scale farmers benefit most from these methods, and agri-business misses out – that’s why we hear so little of these successes. Sustainable food production offers alternatives to the small farms that have plenty of hands to work the land. Little of the extra food produced finishes up in the supermarkets of rich nations. Most of it is eaten by the people who grow it.

Many well-meaning people in the West will argue that people everywhere have a right to dispense with back-breaking labour. Those who have driven a tractor for 8 hours a day will know that this, too, is back-breaking labour. Besides, it is monoculture which cripples workers by forcing them to concentrate on one job such as cane-cutting. That’s what a Cuban sugar worker pointed out to Angela Davies who admired his rippling muscles. The answer is not just to replace him with a tractor, but to replace his monotonous and crippling work with the variety of skills which have characterised people on the land from time immemorial.

Of course many tasks can be eased by employing machines. What cannot be judged by individual workers is whether the overall effort is reduced by the time you have put in the extra hours on the land to pay for the fertiliser, the crop sprayer, the genetically modified seed and the consequences of land degradation, water shortages and the maintenance of machinery which allows capital-intensive farming. The cost to the planet is now becoming apparent and may well be immeasurable.

No single sustainable agricultural technology can be applied to all the world’s food problems. The beauty of the overall concept of sustainability lies in the way it once again decentralises science and hands it back to the people.

DIATRIBE 89 - Bird Flu - Another Threat To Humanity And Nature

What has the threat of another pandemic to do with technology? We can only answer this question with another question: Why are we now threatened by a new disease which never threatened us before? In this, bird flu joins a number of recent outbreaks of truly awful diseases which have struck humanity in the last half century.

Foremost of these is HIV-AIDS which currently affects some 40 million people world-wide. Related to SIV, simian immuno-deficiency virus disease which affects chimpanzees, HIV-AIDS not only attacks male homosexuals as was originally believed, but a huge range of other men, women and children. Amongst these are the partners of AIDS sufferers, people infected through transfusions of infected blood, newborns contracting the disease from their mothers during birth and so on. The first infections so far traced go back to the 1930s, although the epidemic didn’t really take off until after WW II. The mode of transmission from monkeys to humans is shrouded in mystery. Explanations range from the eating of infected bush meat to deliberate infections with dirty needles during immunisation campaigns in Africa. The obvious explanation as to why the disease spread so rapidly in its current phase is that the spread is certainly due to our rapid means of transport, particularly the aeroplane. What has helped, if that is the word, is the fact that the only way to fight HIV-AIDS is very expensive, too expensive for the impoverished countries where the disease is currently proliferating. Prejudice helps, too, because the wrong

assumption that the disease happens only to homosexuals and is a fitting punishment for their so-called sins is common, particularly in Islamic countries. Another prejudice, namely that AIDS can be cured by sex with virgins, leads to the rape of young children and to further spreading of the virus, particularly in certain African countries.

Another disease peculiar to our historical period is CJD, Creutzfeldt Jacob Disease, which is also caused by animal contact – in this case the presumed feeding of animals such as sheep on ground meat. No-one really knows how this infection which is unrelated to either bacteria or viruses really works.

When humanity was sparsely spread over the globe, such virulent killer diseases died out naturally because they killed their hosts. At the present time, we have the means of eradicating many of humanity's worst killers; but often this is not done even when there is the money to pay for it. For instance the triple antigen injections which prevent babies from contracting measles, mumps and rubella, is nowadays rejected by some parents either for religious reasons or on the basis that if all other children have the injection yours will not need it.

What has all this, as well as technology, to do with bird-flu? After all, various strains of bird flu have always been with us, or more accurately with the populations of wild birds which live or migrate around the world. What is important is what has changed. Please bear with me, because it is a complicated story. I am indebted to Deborah McKenzie for her article in *New Scientist* for much of what follows.

Birds in the wild, when infected with the H5N1 virus, especially ducks, carry the virus in their gut without causing obvious symptoms. The massive growth of intensive livestock farming in recent decades has created the conditions for an altogether different kind of virus. In China in the 1990s, one local H5N1 strain did well for itself by adapting to domestic chickens. It acquired a mutation which allows it to infect the chickens' lungs as well as every other organ in their bodies. In the wild, this would lead to the dying-out of an individual flock, but when the chooks are crammed together in flocks of tens of thousands, there is always another bird nearby to be infected. This is one of the aspects which prevents the natural decimating of bird-flu infection. In the wild; the virus simply kills too fast to spread amongst a scattered population. H5N1 seems to have overcome this limitation by acquiring the ability to infect a wider range of animals than any previously known flu virus. Crows, pigeons, falcons and buzzards could get it, as well as mammals such as tigers and domestic cats.

Yet, until last year, the vast majority of infections were in poultry in a few east Asian countries. Officials blamed wild birds for the spread of the disease, but this turned out to be wrong. On the contrary, H5N1 turned out to have evolved slightly differently in various Chinese provinces which means it must have spread through the domestic rather than through the wild bird population.

Actually, when H5N1 first adapted to chickens, it became deadly to ducks which are the usual carriers of flu in the wild. However, sometime in 2004 the virulence of the strain abated, and many ducks survived, but still carried the virus. In 2004 one in every 5 ducks in the Mekong delta had the virus but was in no way adversely affected. This is the key to the massive problem all of us are now faced with.

After all, the disease has already spread to other mammals. If it can mutate to humans, the result will be disastrous. We have a habit of referring to all colds and chest infections as "flu". This is a serious mistake. Influenza is a family of serious diseases which is caused by a virus which is constantly mutating. After the First World War a virulent form spread world-wide and killed more people than died as the result of this in itself horrific war. You cannot effectively guard against the virus now because you have to wait for the outbreak of the infection before you can prepare an antidote to the particular mutation of the flu virus which is transmitted from whatever carrier turns out to be in the chain which transmits the disease. There is no way in which we could ever produce sufficient antidotes in time given the speed at which the infection is likely to spread. This doesn't mean no preparations are possible; just that such preparations cannot do more than scratch the surface of the problem. Be afraid, be very afraid.

It is a miracle of modern science that so much about this disease has been discovered in such a short time. However, were it not for the inhuman conditions which our industrial capitalist society inflicts on domestic poultry, this threat which hangs over a whole range of domestic and wild beasts would not be there in the first place. And despite the magnitude and complexity of the threat, the amount of research money spent on dealing with it is a mere fraction spent by the so-called advanced countries on the invented and manufactured threat of terrorism.

DIATRIBE 90 - Information Society – Surely You Are Joking?

You can't eat it, you can't drink it. You can't smell it, which may be a good thing. You can't even tell what it is until someone tells you. You can't live in it or sleep with it. Yet we are told that it is the world's most valuable commodity. We are told that if we haven't got it, we will perish. In case you haven't guessed it, I am talking about Information with a capital I. I have said what information isn't. Let's look at what it is.

If you want to operate a machine, it is likely you may need some help from someone who can explain it to you. That's information. You will note that the information in this case relates to a specific object, the machine, and it

hardly exists as anything other than a part of this machine. In this sense, every skill requires information, and every learning process consists of acquiring it. It may well be that it is one of the things which distinguishes us from the apes and other species, which can only learn by imitation.

The information referred to by its gurus is not specifically of this sort. Indeed, when they talk about information technology, they don't refer to generating information, they talk about means of transmitting it. It appears that there is vast importance in sending stuff from A to B in milliseconds instead of a day or two. And, curiously, they are concerned not with details of machine operations, where speed is essential, but with the sort of material which doesn't require immediate attention and which normally doesn't get it, no matter how instant the transmission. When you send a fax, a written communication or an e-mail, or indeed all three, which has now become the norm, you wouldn't have the slightest notion about which of the three a recipient would look at first.

This quite ordinary process, which in one way or another has been going on for thousands of years, has now been imbued with some magic which somehow suggests that the whole of humanity, but certainly the whole of a country's wealth generation depends in the speed and quantity of information passed from point A to point B.

What is being transmitted is generally not information at all. It is known as data, such things as account details, meeting times and agendas. Mostly it doesn't even come from a human source, but is sent by one machine to another. Indeed, many business letters and memos could be abbreviated to a couple of lines, even if they were written by humans. Ever greater quantities of paper are being squandered and many hours spent on compiling and formatting endless missives which no-one reads or is intended to read.

Even if such material informs humans, it is not information. Information is processed data; it is the processing which adds the meaning. And even the processed information is a long way away from knowledge, which is internalised information. Expertise is the ability to apply knowledge without being aware of a conscious process. If, at the dinner-table, you are asked to pass the sugar, you don't laboriously interpret this as knowledge received but you translate it into a subconscious action while perhaps continuing a conversation. To talk about a knowledge society at a time when our skills are being deliberately denigrated by a variety of agencies is yet another con.

Ultimately, the "information society" con is one of the many aspects of the modern technological means of not only keeping us in the dark, but of demonising those who point out that we are being kept in the dark. Real information is harder and harder to get. In fact what distinguishes our society from previous ones is the extent to which the *withholding of information* is the basis of power for an entire section of the ruling class. It isn't just what they do which makes their fortunes, but what they can stop us from doing. Typical of this is the current lawsuit run by multinational drug companies to force Brazilian and South African Aids sufferers to die like flies if they cannot find the huge sums these companies want for their anti-Aids drugs. This is done in the name of "intellectual property". In an area where until not so long ago patent laws didn't apply, but I digress.

Let's get back to the twilight of technology, as it increasingly falls into the hands of the international Mafia. What gets our backs up with the pushing of the notion of the "information society" is the utter uselessness of most of it, as well as its pervasiveness. But then, in this it isn't alone. Many if not most activities in the so-called economy don't fulfil any purpose in the way of solving any human problem. This is different from what happened in the dawn of the industrial revolution, when textile machines made clothing accessible to many more people, agricultural machines increased the productivity of the land, and so on.

Far be it from me to suggest that all these were unmixed blessings, but they generally did fill a discernible need or solved an acknowledged problem. In the middle of the 20th century this changed imperceptibly as the quite erroneous idea spread that everything that was needed had already been invented. Besides, solving problems was far too difficult for the burgeoning group of so-called inventors and their capitalist backers. The main emphasis went on gimmicks; the difficulty was not to investigate problems in the community, but to dream up something no-one had ever asked for, but which ultimately could be foisted on the affluent in sufficient numbers at high enough prices to make a profit.

This represents a massive shift in capitalism. Where previously it sought largely to muscle in on the exchange of goods and money which provided the necessities of life, the vastly increased productivity of labour coupled with the relative impoverishment of workers now meant that this apparent underlying motive was gone. But then, the real motive of the class society was still there – to increase the power of the capitalist class through its domination of money. This now dominates capitalist technology.

Let me look at a few examples. My favourite is, of course, digital television, which is costing Australia billions of dollars although literally no-one wants it. Next in line is the e-book, which is claimed to be a perfect answer, only no-one has explained what for. There are 1001 gimmicks people hang on cars – understandable when you look at the huge size of the market and the number of people who put their relationship with their cars a long way ahead of any human relationship.

These fabricated myths of relative importance now dominate people. For instance, the media-created paranoia which tries to make us believe that nowadays more people are being murdered in their beds, has allowed the further myth that such a state of affairs, if it were true, could be avoided by locking black people up for a year at a cost of \$40,000 for shop-lifting.

Is it surprising, then, that in a society which already overloads us with irrelevant so-called information our governments and school-governors are successfully persuading us that what we need is to disadvantage teachers financially and use the savings to make a present to the world's richest shyster, Bill Gates? Is it surprising that we believe that playing computer games or the pokies actually creates wealth?

If this is the century of information, it's time to go back to the good old days.

DIATRIBE 91 - Flying In The Face Of Common Sense

Those of you who have listened to my diatribes over the years would not have been surprised by recent technological debacles, particularly those in the airline industry. While I have no direct experience in that industry, in a previous life I spent ten years in charge of maintenance of a medium-sized rubber factory, and a sum total of about forty years in industries where maintenance played a large part. Even though economic rationalism hadn't yet been invented as a term, penny-pinching in the maintenance area was always on the cards. The same bosses who would not have even considered missing out on having their cars serviced regularly (at company expense), whether it was needed or not, simply couldn't bear to see fitters wandering around – as they saw it – when their noses ought to have been firmly forced against the proverbial grindstone.

By definition, maintenance is about the prevention of equipment failure; as such it is hard to prove. For instance, safety is a major aspect of maintenance, and I am proud to say that in my 13 years of doing or supervising the maintenance of the rubber factory, there was not a single major accident. Yet rubber factories are known to be high on the list of accident-prone industries and this is reflected in the insurance rates. Unfortunately, insurance was not assessed on the performance of individual enterprises, so I couldn't argue that I had saved lots of money, just the odd limb or life.

One of the aspects of industrial maintenance is that there must always be an excess of staff to be able to attend quickly to the inevitable emergencies. Yet our fitters were expected to fill in time-sheets which should add up, at the end of the day, to the full hours on so-called productive work. In my case, I drew up a maintenance schedule for the entire plant which specified the inspection and service to be performed on each machine, and displayed it prominently in the maintenance shop. When one of my bosses went on a cost-cutting spree, he wanted to know why we had to spend all this time on machines that "had nothing wrong with them". Henceforth plant was only to be serviced when it broke down. I solved the problem by putting the schedule in a drawer where the boss couldn't see it, and by writing out a machine fault card every time we did maintenance. This ensured that machines always broke down on schedule, and honour was thus satisfied.

A number of general points have to be considered in organising machine maintenance:

- The number of available personnel must be greater than the average required at any one time to cope with emergencies.
- The level of investigative skill in the workforce must be exceptionally high.
- It is essential to have the sort of stable work-force which becomes familiar with the equipment and its quirks.
- Workplace morale must be such that people can be proud of the job they are doing.

Let's have a look at how this fits in with the Ansett case. It is clear from its good safety record that Ansett management had a skilled maintenance force at its disposal. It is also obvious that this good record led management to want to cut costs, because obviously "why fix things that aren't broke". What is not so obvious is that the remedy now applied that of fixing up the paper-work, and employing more fitters and maintenance engineers, will not fix the major problems. For a start, where will they get two hundred skilled aircraft fitters and engineers at a moments notice? Also, the maintenance schedule is largely an inspection guide. To merely certify that you have inspected certain items is only half the job. Management has dismissed the overlooking of cracks in the tail and the engine pylons as insignificant with cracks "only a few centimetres long".

Every first-year engineering student would know that it is the start of a fatigue crack which signals danger. However, with engine pylons, the existence of a crack in a component designed to carry the weight of an engine should set extra alarm bells ringing. An engine pylon carries not only the weight and thrust of the engine, but takes the stresses caused by vibration, an ever-present problem in the massive high-speed rotors which are the main components of jet engines. Thus a cracked pylon may well indicate an unbalance in the rotors, which in turn may be due to blade problems. A blade failure is one of the most catastrophic events that can occur in a jet aircraft, leading to loss of control, cutting of fuel lines with subsequent fire, depressurisation and frightful injuries to passengers even if the plane stays in the air.

Curiously, with the exception of the Comet disasters, air frame failures in modern aircraft are all but unknown. Of the thousands of DC3s that flew in peacetime and wartime versions under a variety of names, not one had its wings fall off or suffered other spectacular catastrophes beloved of cartoonists. We did have a fairly recent case of a fuel tank exploding due to faulty wiring, which not only was known to be faulty when the disaster happened,

but which still forms part of the kilometres of power distribution system of current aircraft – accidents waiting to happen. Dick Smith's affordable safety is still alive and well.

What was Ansett's answer to the supposed underemployment of maintenance staff? Not very novel. They corporatised the maintenance functions, and touted for business with other airline companies. While not having had direct contact with Ansett staff, I do know what happened to the old Board of Works Radio Section maintenance staff, which were similarly separated from their parent company and treated as outside suppliers, while their services were touted around the traps. It was a disaster. The changeover meant that the new section didn't have access to spare parts for the specific equipment they used to service. The new business they got was negligible. After a year, they gave up as the Board of Works was turned into Melbourne Water. I am certain that the people who corporatised this maintenance function didn't have the slightest idea of the wide range of services the Radio Section was providing, or the enormous experience that had been acquired over the years. While Ansett's maintenance subsidiary apparently got some outside contracts, they clearly did so at the expense of maintaining the Ansett fleet.

Cost-cutting in the airline industry goes back a long way. In fact, the pilots' dispute of the 1990's was partly about pilots wanting a greater say in aircraft maintenance, a claim which the bosses regarded as an outrageous encroachment on their god-given right to manage, and which they answered by sacking the entire pilot workforce. The result was that, under Dick Smith, small commercial aircraft were allowed to fly with missing or deficient instruments, leading to at least two fatal crashes. The problem is not, as has been suggested that cowboys are flying; the problem is that cowboys own and are running the airlines and CASA, the civil aviation safety authority.

What is the answer to these problems? The answer is that if we are to have hi-tech industries at all, they need to be staffed by experienced operators and maintenance personnel whose contribution to industry is understood and appreciated. For instance, in the airline industry it is necessary not to just follow blindly prescriptions of the manufacturer, but to exercise skills which allow the engineers to actually observe problems not yet specified in the documents. After all, where does the information which is contained in the service bulletins come from? It comes from maintenance personnel with skills, who keep their eyes open, and alert their employers and the manufacturers when problems are observed.

Unfortunately this is not now likely in the airline business, or for that matter, in any form of public transport. For nearly a century the Victorian Railways maintained a huge skills-base in its workshops, and trained many of the apprentices who became the mainstay of industry in a variety of trades from carpentry, blacksmithing, upholstery and metal machining to electric motor maintenance, signalling equipment technology and beautifying and maintaining the grounds around stations.

Why should the state have done all this upgrading of skills, knowing full well that the direct benefit to the rail system would not be great, as tradespeople from the workshop were snapped up by industry as soon as they came out of their time. Even if taxpayers couldn't trace the returns on this investment directly, it was there. A recent parallel is in the way ABC local television production trained actors, technicians, writers etc. until the current destructive wave took over, cutting local production and giving the money to so-called executives instead.

One question remains. Why this sudden (last ten years) wave of penny-pinching and taking risks with passenger safety in the airlines? One answer may well lie in the change from individual ownership (as in Reg Ansett's case) and public ownership (as in the case of TAA) to corporate owners, and administration by self-serving overpaid idiots. This doesn't explain everything, but it's worth thinking about.

DIATRIBE 92 - Murdering Civilians Slowly – The Glories Of Modern Warfare

O, for the good old days of warfare, before the invention of gunpowder, when men were men until they turned into dead men, and when civilians were almost unaffected by war except when soldiers rampaged through conquered cities, looting and raping, or except when the ravages of victory led to starvation, plagues and thirty years of misery as in the 30 years' war. For soldiers in the field it meant endless marches interrupted by one-day battles from which you emerged either dead or alive, albeit with horrific wounds or the odd limb missing. All good clean fun, by the sound of it. It must have been great to see your commander-in-chief having it out with the enemy commander while you stood there cheering. If only.

Dealing with this mythical time, writers of legends invented tales of personal courage and derring-do (whatever that may mean). I still remember reading one of Sir Walter Scott's romantic tales which left a knight wandering around in circles until he dropped dead after having been hit on the helmet with one of these maces with spikes. When cannon were invented, they were only effective when used to knock down fortifications; after all, who wants to kill people one at a time, when you could do it much cheaper with an arrow let loose from a long-bow.

As kingdoms developed into nation states and empires, the killing became more efficient, shells exploding overhead or on impact tearing numbers of soldiers to pieces with grenade fragments. The Prussians still clung to the notion that to stand up to such missiles fired from kilometres away, constituted some form of personal courage which affected outcomes – they called it the “steel-bath”, only it left a lot of mud and blood behind, unlike a real bath. And the commanders were nowhere to be seen; they fought their power-struggles in relative safety.

In these safe positions, their own valour showed up in its true perspective. At last, in WWII, they admitted that war was mainly about killing the maximum number of people and it didn't much matter whether they were so-called civilians or soldiers (the body count). Indeed, civilians made better targets because they couldn't retaliate. And, as everyone knows, enemy civilians are lily-livered and crack as soon as you immobilise their poker-machines, whereas “ours” are steadfast and just love being blown to smithereens, while sporting stiff upper lips. They particularly enjoy watching it happen to their children.

The technology of warfare in the twentieth century largely boiled down to two things: killing lots of people and doing it from a safe distance. High-level bombing allowed pilots to tear great holes into entire suburbs kilometres behind where they pressed their bomb release buttons, and it allowed bombers to be shot down from the ground at a height where they were barely visible to the naked eye. Radar allowed sailors to successfully aim their guns at ships which were well over the horizon. Towards the end of the century rockets completed the notion of war-at-a-distance.

There was one unfortunate problem. Once a war was over, apart from the irreparable human casualties, most of a country's infrastructure could, in time, be rebuilt. One could, as the US does in Iraq, impose the sort of sanctions which mainly kill children but have absolutely no effect on the rich and the powerful. However, this is awkward and gets you into trouble with namby-pamby civil libertarians and, at this stage we can't wipe out all of those. Luckily, the US has found a very cost-effective answer to all these problems.

World War I saw the introduction of a new weapon, the tank. With its armoured exterior it could withstand the impact of many ordinary shells, as well as providing a moving platform for heavy armaments. World War II found a partial answer to this new warfare: the armour-piercing shell. This shell, generally without explosive charge, was fired at high velocity. Its hard nose would penetrate a tank's exterior. It would then ricochet around the tank's interior, setting fire to the fuel which is carried inside, and shredding the occupants into mincemeat as a side-effect.

Armour-piercing shells depend on the density of their constituents for their effectiveness. Steel may be relatively heavy, but there are far more dense materials, gold, for instance. Gold, however, is expensive. Depleted Uranium is hard, 60% heavier than steel, and it is cheap.

What is depleted Uranium, and where does it come from? Ever since WW II the US (and others) have been beavering away making nuclear bombs and to a much smaller extent, producing fuel for nuclear power-stations. Producing these materials requires the concentration of a small part of naturally occurring uranium. This process is called enrichment.

But, after this ‘enrichment’, the bulk of the original material still remains - as depleted ‘tails’, still with about half the radioactivity of natural uranium, and concentrating it in a way never found in nature. This ‘depleted’ uranium (DU), then, is the industrial waste of the enrichment process, and there are over ten tonnes of it for every twelve tonnes treated. So is it just thrown away? No, that's not possible; it is still *uranium*. Which means, it is continually spitting out particles and radiation dangerous to health, and will keep on doing so for untold years. And it has some nasty tricks, like catching fire spontaneously if exposed to the air in dust form, and corroding metal containers, and being - quite apart from its radioactivity – a heavy metal that is highly poisonous chemically.

To store such waste in the metal cylinders it needs, and carry out the maintenance needed to keep it relatively safe, is not only nightmarishly difficult but costs a lot of money. A few kilograms might be tolerable, but the industry has now accumulated – wait for it – over *half a million tonnes* of the stuff.

Imagine the delight of the industry, when some bright spark suggested a possible use in bulk for this rubbish, in a market famous for its unlimited potential: make military projectiles out of it! Predictably and profitably, the escalatory response quickly arrived, and now tanks must have uranium body armour to block uranium ‘penetrators’, greatly stepping up demand in the hot-rubbish market. A third of the American tanks in operation *Desert Storm* were already so equipped.

What happens when a uranium penetrator hits its target? It has no explosive filling, and needs none. Heated by the high-speed impact, it shatters into fragments that burn spontaneously to raise the temperature even further, ensuring the target's annihilation. The result is an aerosol of fine uranium oxide dust, in kilogram quantities, dangerous to breathe in or swallow. Much of it is in the right size range to lodge in the body – the lung particularly – and reside there for a long time, measurable in lifetimes, bombarding it with cancer-causing decay particles. Winds can spread this dust, perhaps for kilometres; eventually, it will fall out into the soil and stay there, along with bigger fragments and whole penetrators that happened to miss their target. This poisoned soil is part of the long-term legacy left from the military operations in Bosnia, the Gulf War countries and Kosovo.

Some three hundred tonnes of uranium were scattered about in the Gulf War alone, by U.S. and British tanks and U.S. aircraft. A mere couple of grams supply the permitted bodily burden for about a thousand people. Even if the use of penetrators is seen as “necessary”, they could just as well be made from tungsten – similar properties, even more dense, and no poison. But as in the case of asbestos there is the question of price – DU costs nothing.

If you think that no country would subject its own soldiers to such risks, think of the current revelations about the Maralingra tests, think of Agent Orange. It is enough to mention that so far there has been only whitewash; no groundwater tests, just the usual PR which denies the existence of Gulf War Syndrome, and an UN inspection team which looked deliberately in the wrong direction. Because radioactive contamination does not produce a specific illness, it is possible to deny that it produces any ill-effects at all.

Our mining industry and the Federal Government like to stress that, “safeguarded” against ever becoming part of a bomb, Australian uranium goes into idyllically peaceful uses only. Will they now call for stronger safeguards to block its military conversion into environmental poison as well? Perhaps and perhaps not. People on our side, who insist that technology “in itself” is neither good nor bad, might ponder the question of what could be good or useful in depleted uranium and the whole of uranium technology.

DIATRIBE 93 - The Human Cost Of Technology

Victorian listeners to this program may have known Ruth Berman. Ruth was involved in progressive causes all her life. The opposition to the Vietnam War, women’s issues, the fight to conserve the environment, you name it, Ruth was involved in it. No more. Ruth died last Friday of Mesothelioma.

Mesothelioma is an asbestos-related cancer. It occurs, as it did in Ruth’s case, up to 40 or more years after exposure. Once diagnosed, sufferers rarely have more than a year to live; in Ruth’s case, the exposure happened around 40 years ago and she lived for only around six months after diagnosis. We can’t be certain of when she contracted the disease, because it is likely that her exposure was due to her washing her partner’s overalls. He worked for the SEC as a fitter. All those handling asbestos, no matter how slight the contact, are in danger of contracting Mesothelioma or asbestosis, the other asbestos related disease. It kills you more slowly with your lungs slowly ceasing to function. And anyone working in industry, regardless of what industry, is endangered, because asbestos was everywhere and plentifully available locally. It was mined in Wittenoom. You find it wherever steam was used, such as in ships, wherever asbestos cement was used in buildings, in the motor industry, where asbestos was used in brakes and clutches, even travelling in trains, which used carriages lined with asbestos.

Ruth’s death is not just a tragedy, it is a scandal. The deadly danger from asbestos was known before World War II. It was raised time and again in the medical literature. Nor is asbestos irreplaceable as an insulating material. Its value as a high-temperature insulating material is only required in very few applications. Most people think that its main advantage is that it can stand up to high temperatures and that is indeed of value in stove gaskets and automotive brake and clutch linings. But, for instance, engine head gaskets never get really hot beyond the radiator temperature and asbestos was used because it is compressible. Certainly no heat at all is involved wherever asbestos was used as a building material. In every application without exception alternatives to asbestos are available and have been available for ages.

The brutal truth is that the main advantage of asbestos is that it is cheap and plentifully available locally. It was mined in Wittenoom in Western Australia where miners boasted that the asbestos dust was so thick that you could hardly see your hand in front of your face. To-day, few of these miners survive and those that do may very well succumb at anytime. Most asbestos went into asbestos cement sheet, and few of the people handling it in manufacture will survive. Many building workers who used saws to cut the sheets will be affected.

The major group affected, however, will be fitters in plants using steam. Pipes carrying hot steam, particularly in power stations, were wrapped in the stuff, with a cotton admixture to stop it from falling apart. In time, the cotton component disappeared with the continued application of heat and the asbestos turned into poisonous dust which lay deep on every part of the station. Places like Yallourn, the first of the Latrobe Valley power stations, became death traps. What is more, they were known death traps.

Once upon a time Yallourn was a thriving township. Sir John Monash, who was the CEO of the State Electricity Commission and the engineer responsible for the Yallourn scheme and its social aspects, had a statue erected to him in the town square which, on its plinth, carried an inscription saying that “this town stands as a permanent monument to his genius”. The town has gone, and so has the monument.

In 1995, George WRAAC, a long-term shop steward for the AMWU, and a member of a committee which coordinated the fight against asbestos, and who represented the union and the SEC, published a small book which finally explained why the town of Yallourn had been razed to the ground. We knew that the SEC claim that

the town stood on a coal seam was a malicious lie; Monash had made sure that no useful coal lay under Yallourn township.

The truth was that, as George said, Yallourn was a compensation time-bomb which had already started to go off. Literally billions of dollars in compensation were at stake. Had Yallourn remained, there would have been a basis for a massive class action because every street, if not every house, would have been inhabited by victims of asbestos. Nor could the management have claimed innocence; at the time Yallourn went on stream, the horrors of asbestos were already well known. However, nothing was done.

In the late 1970s I visited Bendix Mintex at Ballarat. Bendix Mintex is the home of Australia's manufacture of brake and clutch linings. The manager proudly showed us round the factory, particularly the precautions taken to avoid asbestos dust getting into the air. It could only be a matter of years, he explained, before asbestos was banned from use everywhere, and his costly prevention exercise was to bridge the gap while it was still in use. He died shortly afterwards. His "temporary" precautions are still there because even now, 20 years later, asbestos has still not been phased out completely.

Why does industry keep on deliberately murdering its workers and the population at large? The general assumption that it is because Health and Safety are expensive, can only be partly true. After all, the cost of compensation alone would more than pay for prevention of accidents and work-related injury and death.

One explanation must be that we have been brainwashed into holding life cheap. Motor-car accidents which lead to about as many deaths as industrial mayhem are also treated lightly, as part of the so-called road toll. These deep tragedies, which are largely preventable, do not rate highly with media. In the case of car accidents, the motor-car lobby has a vested interest in withholding the truth; with industrial accidents there seems to be a long-established class based attitude that a worker's life is of little or no value. In the 19th century when factories and textile mills were mainly multi-storey because they had to be grouped around a central power-plant, it was common for hundreds of workers to be burned to death in a single accident. One of these disasters, in Chicago, was indeed the origin of the world-wide May Day celebration. In these cases it was common for exits to be locked or inaccessible, adding to the death toll. Many died through jumping out of upper storey windows.

Of course, this was 150 years ago, you might say. Not so. Precisely this type of tragedy is currently still common in places like China and India, particularly in textile mills run by the agents of multinationals. Our media hardly ever find these events worth reporting.

Ultimately, however, we must look to class prejudice as one of the main reasons why industry kills and maims its workers. In an earlier life, I was works engineer in a rubber factory. This trade is notorious as being inherently dangerous. The main reason for this is that heavy and powerful machines are used and, because it is an industry going back to the 1850s, beliefs about its "inherent" dangers have become entrenched. The most common horrific accidents happen on rubber mills and calenders where operators are dragged into the "nip" of the machine. When I first started in the rubber trade, the mills were fitted with a pull wire over the operator's position; he was supposed to pull this when caught in the machinery. Firstly, when you get dragged into the machine, your natural reaction is to pull the hand out with your other, free hand. Secondly, I doubt whether you could have reached the pull wire once you had your hand caught. I read in a US rubber-trade magazine about how in US factories, where most of the workers would be black, they formed teams to deal with the victim of a mill accident: Two men to "calm" the victim, one to wind the mill back, one to fetch a crow-bar to force the rolls apart and so on. No thought of how to make the machine safe. We found that a simple bar in front of the mill rolls ensured that without any conscious act on the part of the operator, any movement towards the nip could be made to switch the mill into reverse. Similarly, on a boot-clicker, another source of frightful accidents, having to unlock the operating handle by the other hand made the machine safe without slowing it down.

For most bosses, eliminating hazards is seen as pandering to people who deserve what they are getting and who are "inventing" industrial hazards. Terms like the "Mediterranean back" for the most common type of workplace injury add a racist element to an already intolerable situation. The current resistance by bosses to a new law which would at last impose personal liability for negligence, such as the Esso Longford gas disaster, demonstrates that industrial safety is a matter of ideology, not of common sense or economy.

Unfortunately, a macho attitude amongst male workers who are proud of taking idiotic risks, and a "she'll be right, mate" philosophy, helps to reinforce the bosses' ability to subject workers to dangerous work-place practices which should have disappeared years ago, just like the use of asbestos, and of various carcinogenic chemicals, such as organic solvents. Even if these hazards take some time to kill you, it doesn't mean that you are not dead at the end of the process, or that you won't, from an early age, be a burden to those who care for you.

DIATRIBE 94 - The Games People Play

Since the most recent downgrading of the ABC, the formerly interesting Thursday night *Quantum* program has been given over to a thing called *Aftershock*, which discusses the future, or at least claims to do so. This is not the future you or I would be interested in; it is not concerned with discussing any of the world's pressing social problems, such as global warming, feeding the hungry or curing those who either suffer from old established or indeed culturally induced illnesses.

Instead, it is all about technological games for the rich, who are generally referred to as "we". "We", according to the mostly hand-picked discussion panel, are going to spend all our time in computer-related modifications of "our" environment, regardless of what this does to our environment or indeed to the rest of humanity.

This is not an aberration. As the enormous divide between rich and poor nations, and within this society, rich and poor individuals becomes obscene, the targets of capitalist exploitation are changing. Twentieth century consumerism largely concentrated on mass consumption by the affluent industrial nations which in turn exploited the Third World for its raw material and cheap labour. Typical of this trend was Henry Ford's idea of providing cheap motor-cars for all and sundry. Today the system has succeeded in turning what were formerly luxuries into necessities. By deliberately destroying public transport, capitalism has forced workers to spend large sums on cars, while at the same time forcing the old, the poor and the disabled to restrict their often necessary travel to a minimum.

The problem arises in this 21st century: what can you sell to the filthy rich who already have everything they can think of? For a start, you can sell them overpriced goods whose value is in itself an illusion. There is then no limit to the price. You can sell a \$20 wrist watch with a fancy brand as being worth \$2000, or a \$50 dress as being worth \$700. You do this by spending far more on promotion than on making the goods. This rip-off works well with people who have no idea of value and aren't even interested. But such spending areas are becoming old hat. Once you have circled the globe ten times on buying trips, once you have a thousand pairs of shoes like Imelda Marcos, once you have run out of "friends" you can impress with such waste, your usefulness to the system as a consumer becomes limited to varieties of gambling - which aren't of much value to world-wide acquisitive capitalism. This is where technological innovation comes in.

Technology offers an endless field for creating ever-new goods of illusory value, accessible only or mainly to the wealthy. With present-day ease of implementation, new designs, particularly in the consumer electronics field, can be turned into money spinners overnight. Gone are the days when you could only play an instrument after years of practice - a press of a button will play not only everything from a set of drums to a symphony orchestra, but will convince you that what you are doing is innovative and artistic. One of the biggest money-spinners are electronic games, which have reached a pitch of technical perfection matched only by the mindlessness of their contents. Better still, every time you have nipped out a solution and memorised it, it becomes virtually useless (you notice, we even have virtual uselessness these days).

All this might be considered as just par for the course, affecting only the rich. If they want to live in a world of unreality and make-believe, good luck to them. We can, after all, still go on having real relationships and give vent to our own creativity. Unfortunately, this isn't true. The waste of resources inherent in the game-play of rich nations and rich individuals affects the poor disproportionately. I am not just talking about things like the Grand Prix, where thousands of people travel untold kilometres so that they can watch specialised waste-machines waste thousands of litres of irreplaceable fossil fuel to go round and round a circuit.

Even cultural play activities, which are at face-value useful, are often environmentally disastrous. For instance, I received on the internet an invitation to an "environmentally friendly" electronic music concert in a clearing in the Brazilian rainforest. So, I am supposed to go half-way round the world in a gas-guzzling jet to hear some rock groups turn kilowatt-hours of electricity into noise pollution in what is normally - except for the racket of chainsaws - a peaceful and pristine environment. It's like fighting a war to end wars.

Thus, the thoughtlessness of people brought up in our waste society allows them the illusion that such activities, because of their stated but by no means implicit "environmental" purpose, could make up for the damage inflicted on the environment. If our friends can inflict such damage on the world just through thoughtlessness, what about the games played by the rich and powerful? To such people the entire human condition is just a game. Only this week it has finally been admitted that the Indonesian slaughter of 1965 was part of the Cold War game played by the CIA with Australian assistance. Here you have somebody in Langley, Virginia, pushing figures across a board; only these figures represent thousands of real human beings half a world away. With a press of a button, 100,000 names are transmitted to the Suharto butchers and anything up to a million people are shot, raped or slashed to death. Seven years later, the same game is played in Chile, with similar results. All over South and Central America, all over Africa and Asia the same game is played. And, make no mistake, just as the game was played in the invasion of Australia in 1788, the game will be played here by the men in power. The reality of mutilated bodies, of starving children or destroyed crops need not and does not enter into the experience or consciousness of the suited or uniformed players who see it all as a ploy for re-election or personal spite.

Back to the domestic scene and children of all ages playing violent computer games. Or the same games enacted out of doors in paint-ball simulations. Academics are having their own games arguing over whether such games are "harmful", whether they lead to re-enactments. As if that were the only aspect worth considering. Why

do individuals who think they are human beings invent such games? Why are people educated to like playing such games? The answer is simple – money and power; not only the power of winning such imaginary contests, but the power of inventing them and making money by selling them.

Such testosterone-driven exercises may have been less harmful, when weapons were teeth and claws. Few animals fight their own kind to the death. With spears and arrows, the fight already became alienated, as people could kill at a distance. With modern weaponry and communications, the business of killing becomes just another game played in imagination or reality. Such games should find no place in a human society.

However, it doesn't need lethal weapons, explosives and mines to play deadly games. Sanctions inflicted on Iraq in a game of point-scoring for the US are at this moment killing Iraqi children by denying them food and medicine. For the game-players in the Pentagon this means no more than the gain of a couple of pawns in a chess game – indeed I doubt if it means that much.

It isn't that the world is short of problems far more interesting than the destruction of human beings. Instead of depleting our supply of artesian water by wasting thousands of mega-litres for the production of Roxby Downs uranium which no-one needs or wants, for instance, we can find ways of minimising water use for necessary crop irrigation, and reduce soil loss through salination. Instead of destroying minds and bodies in declaring people unwanted through unemployment, because the economic system can't employ them profitably, instead of using incredible resources for military adventures, we could, if the power-brokers allowed it, provide habitation and infrastructure for the world's people. Just as tens of thousands co-operated to build pyramids, and millions were driven to co-operate on mutual destruction of World War II, the whole of globalised humanity could co-operate to solve the world's massive problems.

The reason why such things are not happening is not that the world's people are greedy or lazy. It is because we allow ourselves to be dominated by leaders who have no intention to permit humanity to save itself. The first task is to stop them from inflicting this madness on us before it destroys us. The only game worth playing is the mutual pursuit of happiness rather than mutually destructive competition.

DIATRIBE 95 - *The Destruction Of Local Culture*

Recently I saw a reference to some IT guru's pronouncement that the cyber society would at last get rid of the Tower of Babel problem of having thousands of languages stuffing up what, in the guru's comprehension goes for "communication".

He (it would have to be a he) is of course right. If communication is to mean the sort of drivel which generally infests cyberspace chat shows, then a vocabulary of a few hundred words of English would be sufficient. However, when it comes to language with deeper meaning, such as poetry, we need more complex expressions. Much of this language is culture bound. Not only is the vocabulary different – why would desert-dwellers in central Australia need a term for "powder-snow" or "bitumen" before white contact – but the emotions conveyed by language are also different. That's why it was so hard to translate Brecht's acerbic poems into English, and it is getting easier now when the feelings that prevailed in the Germany of the 1920s are spreading throughout a now equally cynical world.

Predictably, it is the ruling class which feels threatened by local language and the way it expresses local culture. It is surely significant that the first thing an invader does is to bar local language and local religious customs. And it must be admitted that this is often very effective. The Protestant religious movement was effective over most of Europe except in the countries where the later Counter-Reformation restored the idolatry and anti-humanism of southern European and Spanish Catholicism, shot through as it was with much more ancient superstitions.

All this repression is now old hat. Instead, we have an all-pervasive technological pressure which forces a with-it generation, and often its elders, to prove that they, too, are not cultural dinosaurs. Recently, we were visited by Naomi Klein whose book "No Logo" shows how consumerism is creating a non-culture of advertising jingles and brand-name ostentation. Millions of poor and not-so-poor kids around the world accept without question that anything with a Nike swoosh on it must be better. Some will even murder for this insignia. None of the dupes of these campaigns could point to any quality in the products, because there is no such quality. Advertising technology not only robs us of the ability to exercise skills and craft to produce useful and culturally satisfying ways of filling our needs, it also robs us of the discernment we need to defend ourselves against the lies of the hucksters.

Tribal cultures often had – as in Australia – secret languages empowering sections of their communities. Such cultures are now being replaced by meaningless technological-sounding brand-names and slogans invented by sales personnel and politicians (remember "Incentivation"?). These verbal monstrosities are aimed at empowering their commercial and political inventors to the detriment of ordinary people. A good case in point is the computer talk which has now replaced football talk as the secret men's language at the pub. This, however, is no longer a local culture, but is a power trip for a world-wide secret society which excludes most people. Am I

flogging the proverbial dead horse? Is it possible to develop local cultures in a sea of globalised conformity? I suggest it is.

For a start we must resist the impositions of salespeople and bureaucrats who want us to discard perfectly good descriptive terms in favour of the language of economic rationalism. For instance, don't ever give up on protesting against the use of the word "customer" in describing your relation to a local council, when in fact you are a ratepayer. This objection is not just a matter of semantics. Since the "customer" lie was introduced under the regime of Kennett's Commissioners, councillors, by now, have ceased to see themselves as elected representatives and, instead, act as owners of the council's assets. We can also maintain the old work-place union-centred culture, instead of going along with corporate culture. Every time you hear the word "reform", run a mile. And we don't have to parrot corporate clichés such as "Times have changed".

Times have not changed. The ruling class, world-wide, has used its massive strength to change our conditions. Even so, the changes have been minimal. The changes in technology, which is what the gurus of the changing times are referring to, are not massive. The introduction of the so-called knowledge revolution has had minimal impact on humanity compared to the impact of chemistry, of the bull-dozer and chain-saw, of the overuse of water and of energy. What's more, the hype about the information super highway is already fading. While the domestic use of the computer and the internet continues, the domain of its expansion is already seen to be limited, as most of those who can afford them as toys already have them, and the next fad could be arriving any time.

However, in line with my earlier remarks, technology has been used as a powerful lever to displace established cultures all over the world. The electronic entertainment industry has supplanted much of the personal involvement in creative music making and other cultural creative pursuits. The same goes for sport, which after decades of being a mere spectator exercise has now become a TV entertainment. The most important cultural change inflicted on us is the instilling of a firm belief that whatever inroads are made into our lives are not due to the bastardry of our elites, but are the "natural" outcomes of "The Computer" which can be blamed for almost anything. Gone are the days when some people could look on technology as liberating.

Some of us have been there before. In the early 1940s every shortcoming in society was met with the mantra - "Don't you know there is a war on". Technology, which was touted as making everything cheaper and better, has finally shown its true face as a destroyer of culture.

For instance, it is supposed to be technology which is responsible for lengthening our working day and working week. The technologies which actually necessitated shift work are the old ones which needed steam boilers, such as the rubber industry, which were wasteful if operated for only 8 hours a day, and mining, where transport to and from the work-face had to be paid for by the boss and where the work place was limited in size. It was used in places of high capital intensity, such as steel mills, where the machine time costs vastly more than the labour of tending the machine. It is precisely those industries which, in Australia at least, are fading from the scene.

The working day has been extended in precisely those areas where it is least necessary, and where society is most adversely affected by the abolition of the old distinction between working time and leisure time. Do we really need to deal with a call centre for a bank or insurance company round the clock? Do you have to be able to buy meat at midnight?

The answer to these questions, which not so long ago would have been considered ridiculous, is unfortunately, yes. When people's working day has been extended in factory and office, willy-nilly shop-keepers must follow suit. And when the extension of the working day is universal, nothing is easier than for the boss to regard the extra time as normal time, not subject to penalty payments and, in the end, to be supplied free, to prove the worker's loyalty to a company which has absolutely no loyalty to its workers.

Ask yourself whether any of these disastrous changes to our lives is really necessitated by new technology. If the answer is no, ask yourself who benefits by the massive deception practised on us. Think of the way these changes impact on women in particular. Think of the power trips for so-called executives who experience ego-trips by punishing their workers by "keeping them in" at all hours. It is not technology which is to blame in this case, but the capitalist system.

DIATRIBE 96 - Building For Disaster - The Terror Of Technology

The images of the huge ruins of the New York Trade Centre have led many people to believe that these events were the ultimate in terrorism. This is nonsense. Terrorism, and the terror it uses, is as old as the hills, if we describe terrorism as warfare against civilian populations and include the terror wielded by so-called legitimate governments.

The Trade Centre ruins remind you of nothing so much as the stark "Peace Dome" skeleton left standing in Hiroshima as a warning to future generations. In that instance, a single bomb killed upwards of a quarter of a

million people with an unknown number wasting away over the next half-century. In Dresden, a little earlier, a similar number of human beings were fried in cellars or roasted in the flaming streets, to prove the possibility of creating a fire storm. This proof had no strategic value because strategic objectives aren't normally housed in 16th century wooden buildings. On the other hand, the conflagration in the World Trade Centre proved the fire-storm point very thoroughly.

Even suicide attacks aren't novel. They were used by Japanese in World War II when pilots were trained for self-annihilation, using planes as guided missiles against warships. Of course, these events were not classed as terrorism because those organising them were so-called legal governments.

The only new aspect of the now developing situation is that advanced countries are no longer immune and that modern religious terrorism doesn't muck around with demands and compromises, so that the old concepts of dealing with it no longer apply.

A great deal of the technology required for the New Terrorism is accessible to a wide variety of people; and present-day terrorists no longer fit the caricature of the jackbooted paramilitary type holding a spherical bomb with a smoking fuse. As always in the past, successful terrorists have no difficulty blending into the population, indeed they can do it more effectively than the average snooper can hide in a crowd.

The spate of suggestions that have emerged for dealing with terrorists have been as ludicrous as you would expect from our secret agencies. They are hampered, as well, by their stupid attempts, at the end of the cold war, to simply rename their anti-communism as anti-terrorism and thereby justify their pursuit of the same old targets in the same old way. Their insistence on acquiring the latest you-beaut technology, which rarely works, has blinded them to the nature of their real present-day targets. Indeed, the only enemies they can counter are organisational paramilitary and military types who fit into the snoops' mould. The resourceful militant who needs little supervision is beyond their comprehension.

You can see this in their relentless (if you can believe their hype) pursuit of Bin Laden. Islamic fundamentalists come in many shapes and sizes, and random military strikes are bound to generate hatred and aggravation rather than win the hearts and minds of religio-political fanatics. While the well-trained CIA operative either has to follow orders or, as past experience has shown, pursues their personal agenda, people going in for guerrilla warfare have no such inclinations and restraints. This was shown in numerous conflicts in the Spanish Civil War where the term Guerrilla was revived, in WW II particularly in the latter stages of the campaign, as well as innumerable earlier small wars, from the Zulu conflict to the Republican Irish cause.

The most idiotically naïve reaction by the Establishment is to assume that all future assaults on the Western Military-Industrial complex will take the form of hi-jackings of civilian airliners and using them as missiles. There have been articles on how to deal with the risks in skyscrapers, reinforcing aircraft cockpit doors, and, of course, the usual spate of civil liberties encroachments totally unrelated to what actually happened. Never mind the fact that inasmuch as many of these measures are already in place, they have never led to a forestalling of terrorists' actions. Strangely, whenever some terrorist action occurs, instead of disbanding the relevant secret agencies which have proved ineffective in dealing with the problem, the State gives them lots more money.

In our technology dependent society, the number of ways in which infrastructure systems are vulnerable to attack is endless, once an enemy is no longer bent on creating a maximum death-toll, as in the September 11 attacks. All of us are already aware of the problems caused almost weekly by successful computer attacks, most of which have no political content as yet. If such a political motive existed, and large numbers of participants were involved, no-one knows what would happen.

You might argue that such failures, whether due to glitches or sabotage, are relatively harmless. Not so. While only a few years ago a particular infrastructure system may not have existed, this doesn't prove that we can easily do without it now.

Large cities have interlocking systems which are difficult to re-establish once they are put out of action. Electricity, gas, water, sewerage, air conditioning, communications and public health are all at risk. Not so long ago, for instance, if all Latrobe Valley power stations had dropped out, it would have been difficult if not impossible to re-integrate them back into the Eastern Australian grid. All Victorians are aware of what happened when the Longford gas plant blew up.

Economic rationalism has done its bit to make the situation even more precarious. We are living through a phase where thousands of would-be airline passengers are stranded through mis-management known as "competition". With society already under massive attack from bankers, insurance companies, creative accountants and get-rich-quick shysters, we have seen that the system has no answer to the saboteurs already in our midst.

Apart from these expressions of greed, we have enormous areas of ignorance and rotten ideology which runs Western society along lines of class-hatred. Even on their terms of maximising returns to the propertied classes they are not doing too well. It would take a lot of highly trained and efficient saboteurs to damage the Australian economy to the extent that HIH, Ansett, One-tel etc have already done in recent weeks.

So, what should be our attitude and our reaction to the recent US terror?

By all means, if the perpetrators can be identified and found, they should be punished. There are plenty of international justice agencies to do this. Bombing the bejesus out of the poorest people on earth may provide a warm inner glow for the rednecks running the US, but will only create further hatred amongst people already cursing the West for the enormous damage it has done to the rest of the world. The West, particularly the US, is constantly threatening the rest of the world with still more violent technologies. Instead of screaming for retribution, which will obliterate innocent people on an even greater scale, we need to build the sort of society in which terrorism becomes not just unthinkable but unthought of. We need to think of already existing causes of future terrorism

First among these is the gross misdistribution of the world's resources. While the so-called developed capitalist world gluts itself on unhealthy food and unhealthy material consumption to the extent of generating sicknesses never before experienced, Third World people see their children starve to death before their eyes. What's more, this is presented, to us and to them, as natural and irremediable. Naturally it gives rise to the sort of fatalism which sees mass suicide as in the Sept. 11 attacks as one way of acting effectively.

For us, however, one solution lies in objecting to complex technologies which we cannot understand and therefore cannot evaluate. Look at the World Trade Centre concept of building the world's tallest buildings. If ever there were an illustration of the Tower of Babel, this was it. Built like the world's biggest chimney, once upper storey windows had been broken there was no way of stopping fires in such a structure. But why have it in the first place? The economics of such buildings are horrendous, when you consider the amount of space taken up by lifts and by the auxiliary systems for pumping drinking and use water, sewage, and supplies. All of these systems have to be self-supporting in the event of some catastrophic failure of the city's electric supplies. The same vulnerability goes for other parts of the hi-tech infrastructure. We need to rethink the whole of our way of life.

DIATRIBE 97 - How Technology Destroys Cultural Diversity And Digs Its Own Grave

It is unfortunate that the increasing number of people fighting against globalisation see it mainly in economic terms. Of course, the capitalists who run the show see it that way; and economics is the way globalisation is inflicted on Third World nations and on us.

Globalisation, like its earlier version – imperialism – was sold on the advantages it presents, mainly to big business. Karl Marx already saw that globalisation was inevitable, given capitalism's trends to destroy competition. Inevitable under rampant capitalism, that is. After all, there are tremendous advantages for big business in globalisation. Here are a few:

- The race to the bottom for ordinary people. There is always another lot of workers in some other country who will work for less. This, of course, is usually irrelevant, because the cost of labour is nowadays a generally insignificant part of overall costs. However, by isolating a component of an enterprise which is labour intensive, you can always claim significant savings even if, percentage wise, in relation to total the so-called savings are pitiful. Take the current fad by banks and others to relocate call-centres to India; included are ludicrous attempts to make someone in Calcutta, say, to sound like a dinkum Aussie regardless of the fact that the Aussie on this end may well hail from Cambodia.
- The race to the top for managers and directors. Whenever there is an outcry against seven-figure salary rises for so-called top executives, the recipients can (and do) always claim that somewhere in the world the ruling rate for these parasites is even higher than their own obscene claims.
- The impossibility of effective industrial action when globalised manufacture allows technological scabbing by shipping components or entire products from other countries. The General Motors "World Car" is based on this concept.
- The ability to hide financial shenanigans such as transfer pricing. Take Philips which in decades past bought up much of Australia's consumer electrical appliance industry. They have never declared a profit in Australia, preferring to transfer their profits to tax havens or their home country (if they have a home, that is).
- The ability to spread development costs over larger geographic areas, part of the drive to create ever larger markets for products.

There is little that is new in globalisation, that's why Marx could clearly foresee it 140 years ago. Whatever is new is largely due to technological developments. Especially important are improvements in communications, which allow the call-centre dispersion, for instance. There is, as we all know, an upside to easier communications. Much of recent protest against globalisation has been made possible by the internet and by email.

This has led undiscerning and technological gung-ho lefties to abandon their instinctive resistance to technology of this sort. In this respect, paradoxically, it makes people more vulnerable to exploitation, particularly US exploitation, as Bill Gates has found out long ago.

However, long before Microsoft, the US film industry tried to take over the world (it still does). Under the Marshall plan after WW II Hollywood tried to enforce block booking plans which were intended to kill local film production all over the globe. While in Australia this sort of imposition was welcome as part of the Australian cringe – after all our pop singers all like to simulate a yank twang – Europeans, particularly the French, who had just had a wartime gutful of Germanic Kultur, staged successful protests against the attempted downsizing of their traditional civilisation. Britain followed by insisting that part of the income of imported films should go to the local film industry.

While Australians are amongst the victims of cultural imperialism, unfortunately, we are part of it. Perhaps, there aren't many people who nowadays judge a person's intelligence by whether they can speak English "properly", there seems to be a sigh of relief about the disappearance of "tinpot" languages and a feeling that the world would be better off if we all spoke the same language, as long as that language is English. And bear in mind that cultural genocide has killed off hundreds of indigenous languages. To this day, whites are talking about "Koories" as a short hand for culturally diverse indigenous groups.

Just as a replacement of natural crops with monoculture is a disaster, so is the killing off of language diversity. Even worse is the replacement of local cultures, no matter how "primitive" they may appear to us, with the non-culture of the market and the replacement of all our rituals with the ritual of the adoration of the dollar.

In Australia, at least, we no longer belt the living daylights out of kids for using their native idiom. I doubt whether this is done out of kindness. In fact we have far more clever techniques. People simply cannot exist any more unless they identify with Western culture and its technology. TV is a far more effective agent in spreading the gospel of our civilisation than missionaries ever were. The beauty of TV and other electronic media is that the victims become the agents of their own enslavement. It's just like other forms of addiction.

Books have been written about cultural imperialism, and everyone from Mickey Mouse upwards has been shown to spread the US gospel. But now, the story is taking a different twist. The very access to certain technologies has formed a divide between cultures. Islamic culture, which had flourished during the dark ages of European rule of superstition and witch-hunting, suddenly found itself at the mercy of US technology. Not just the level of it, but the way in which philosophy itself was diverted from concerning itself with people to suddenly - in a matter of a few decades – focussing almost exclusively on material objects and their possession. Along with this came a preparedness to work unlimited hours for goods which are ephemeral to the point of being worthless after successively shorter and shorter periods.

The introduction of such attitudes into Islamic and Buddhist civilisation represented a global upheaval which was unique. It led to feelings of inferiority which had profound effects on deeply religious cultures such as the Islamic world. Having led the world for a millennium, this culture now found itself relegated to Third World status. Nor was there any way of fighting this change effectively. Islam prohibited, just as Judaism attempted earlier, the depiction of the human in any image; surely this is incompatible with a "modern" society of advertising, cinema and television. Islam, in its purer forms, treats all interest as usury and forbids it. This, too, is incompatible with the current Western pre-occupation with financial manipulation, which is the very basis of the "market" economy.

Westerners, meaning ourselves, after hundreds of years of the sort of philosophy which made our society possible, judges, on the basis of our superior technology, all other civilisations as inferior. This, in a sense, is true depending on the meaning of superior and inferior. However, when this special interpretation of superiority is used to enslave the rest of the world, something has to give.

And give it did, on Sept. 11 in New York and Washington. Like a modern Eliza Doolittle, the reviled student has turned the lesson to good use. The former technological oppressor now finds technology turned against him; no-one has ever used passenger planes as missiles. And flying a plane is not beyond a benighted Muslim; plenty of airline pilots come from Middle Eastern countries.

Now the boot is on the other foot. Pandora's box has been opened and there is no way back. The technological strength of the US is now also seen to be its weakness, because no-one can tell where the next blow will fall. The West only has itself to blame. Increasingly, the weapons it has forged, physical and cultural, will be used against it, but in novel ways. No-one knows which threats are real. Even in the current Anthrax scare it isn't clear who started it. The Western world will never be the same again.

DIATRIBE 98 - The Technology Of State Terrorism

My apologies for getting back to the hackneyed theme of terrorism. In the ruling class vocabulary, there is, of course, no such thing as terrorism inflicted by the state. By any definition that will stand up to scrutiny, what is called terrorism in the mainstream media and politics is violence, and particularly property damage, inflicted by disaffected citizens acting alone or in groups against others who they feel are representative of the government or against groupings perceived to be in power.

The use of the term terrorism to denote dissent is in itself an act of structural violence. Structural violence is used

by the state and the ruling class, acting together and/or separately, to oppress and marginalise perceived opponents. Sackings, deprivation of civil rights, selective operation of the “justice” system, diminution of dignity and expected police violence, all fall under the heading of structural violence. By definition, all these violent methods are only available to the ruling class and its apparatus, so they never get a mention. If they did, the causes of most group violence would become self-explanatory. Instead, the powers-that-be and their tame academics look for character traits, childhood problems and genetic aberrations which define the stereotypical terrorist, in their opinion.

So far, arguments and accusations of terrorism against people in the West have been convenient when used to make fantasy films in Hollywood during the Cold War, where the vicious gun-toting terrorist and/or agent of the Soviet Union was the stock-in-trade alternative to the Western and the Gangster film. However, there was precious little in the way of events which could be classed as terrorism. Even when, in the 1990s, the Cold War faded away and the communist threat was seamlessly replaced by the terrorist bogey, it sounded a bit hollow in countries like Australia where was trotted out regularly when it was time to increase the budget of ASIO or any of the other plentiful secret agencies which infest Australia.

It's on again with a vengeance. Mind you, the only act of terrorism ever in Australian history was the Hilton so-called bombing, a provocative act organised by secret agencies on February 13 1978, one month after the establishment of the Victoria Police Special Operations Group which was supposed to be an answer to terrorism – surely a case of remarkable foresight. This piece of fiction justifying ever new paramilitary organisations. is still being pushed by State and Federal governments.

As a result of these and other lies, every other year has seen further drastic laws introduced which have brought us closer to full-blown fascism. These laws in themselves constitute structural violence. Technology plays a large part in this wave of repression. Even though we were aware in recent decades that privacy is a thing of the past, the mere bulk of data collected on individuals made it difficult for Big Brother to make head or tail of the information collected. Much of the analysis of the information collected is nowadays done automatically.

But here is the rub. Our awareness that it can be done automatically is just as effective, or perhaps even more effective, as a threat, than detailed knowledge of just how far this interference in our lives is already going. The nonsense about “if you have nothing to hide, you have nothing to fear” was already pushed by Hitler and his Gestapo; the fear in our community has become palpable. It has become understood and even acceptable that in every job, regardless of whether it is for the State or private enterprise, criticism of authority will leave you open to punishment. More than ever before in even the most repressive societies, we are perpetually aware of the possibility of being under surveillance. Daily, there are new technologies which leave us open not only to being watched, but to being punished by powers which not only reside in the state but in every tinpot private business which comes to some agreement with the so-called relevant authorities.

Let's take a not-so-trivial example: A few decades ago, each public transport vehicle used to carry a notice which said “A valid ticket must be shown on demand, or another fare paid”. Nothing about prosecutions, let alone about being responsible for faulty ticket machines. Clearly, the imposition of a rule which reverses the onus of fare collection is intolerable.

Why do people tolerate it, then? I believe that we have been so cowed by technology that we accept all these curtailments of our rights as natural and necessary. This is curious since ticket machines, in one form or another, have been around for half a century. Most of them, it should be said, were used by real live human conductors. Few people are prepared to question whether the private companies who now own the transport systems are actually entitled to act as judge, jury and executioners – as they do; even fewer people are prepared to take a stand against such practices, because it is tacitly assumed that such oppressive rights are conferred on employees wearing someone's uniform or just having an ID of some sorts.

As I understand it, the failure to produce a valid ticket does not automatically imply an intention to defraud. Even if such an assumption can be made, prosecution of this “offence” is not up to a transport employee. Transport users could equally well argue that failure to maintain ticket machines implies some sort of culpability on the part of the transport company, and that transport users have the right to prosecute them for this fraud on their part. The reason why we don't assume we have such a right is very likely that the notion of prosecuting a machine would appear absurd to us.

So much for this trivial example. In the current “War on Terrorism” the “Coalition of the Willing have declared themselves police, judge, jury and executioners in Afghanistan and everywhere else they want to invade. Just because their murder is committed from the air, or by proxy, and just because they have declared unilaterally that they reserve the right to “go in” wherever they like, this does not make their actions anything other than murder. It also makes the Australian government, which already support these illegal acts by the supply of land for communication and spy bases, an accomplice in this murder, and makes our supply of troops part of a criminal conspiracy.

In the US they are locking up and torturing thousands for the crime of being Afghans or Muslims, and we are doing the same here for people who committed no crime, but who have fled countries which are suffering from repressive regimes, many ruled by US installed tyrants.

At a time when the term "law and order" rolls glibly from politicians' lips, our use of power and violence internationally has never been more lawless, and it is becoming more so by the day. The use of propaganda by the media and by governments has turned Australian society into a Lynch mob howling for the blood of innocents declared "guilty" by a bunch of criminals.

This usurpation of power should have been seen for what it is, as it was when it was exercised by Hitler or Ghengis Khan, but power relationships are far easier to conceal in a so-called modern society with all the technological means of lying at its disposal. Amongst other evils, modern technology is the technology of political control of the whole of society.

None of this authoritarian drive is intended to deal with terrorism. Why should it be, when terrorism is its ultimate purpose?

DIATRIBE 99 - The Attack Of The Mars Men

While it was understandable that in the 1960s people could be fired up by the successes of moonshots, with the subtext of outdoing the USSR in the "space-race" which meant military technology, it's hard to see what NASA offers nowadays. It may be worth looking again at what fuels the billions of dollars which were and are still going into what is usually referred to as big science.

Most of it is still around military developments. The current attempts to revive the "Star Wars" program seem to suggest that the US military is once again putting all its eggs into this dead-end programme. There is a mixture of motivation in the US "civilian" space program. It started up with the early moon shots, and continued side by side with the development of yet more and more complicated ballistic missiles. All of it, however, is based on the US war-fighting strategy developed after WW II, which in itself wasn't new. WW II veterans from the war in the islands in our north and in Vietnam will tell you that unlike Australian troops who were jungle fighters, the US military always began an attack by razing the vegetation to the ground.

After the catastrophic US involvement in Vietnam and previously in Korea, the US military decided that all future wars would be fought with overwhelmingly superior firepower and against immeasurably weaker enemies over their own territories, and so far this has worked. As part of this policy, technological superiority had to be maintained at all costs, and this superiority had to be demonstrated regularly.

This was hard to maintain in the face of the success of the Soviet Space Program. Mir, in particular, cashed in on the great advances the USSR had made earlier. Relatively sane organisers of the space program on both sides had always protested against the notion of manned spaceflight, because the life support systems had always consumed a vast percentage of the effort.

Consequently, once the USSR was no longer the enemy, voices of "reason" in the US started to quibble about the size of the US space program, as well as its "scientific" involvement in huge particle smashers which had never yet proved their ability to destroy entire continents as was first hoped. As a result of the doubts about the need for maintaining space superiority, the bean-counters stepped in. Dan Goldin was put in charge of NASA, and its program was going to be "faster, cheaper, better". That's where things started to go downhill.

By this time, the major long-term space effort was concentrated on "populating" Mars. From way back, US popular science magazines were filled with images of huge structures in space, all labelled "US", where men and sometimes women would "colonise" "worlds" so far untouched by human "civilisations", perpetuating in space the economic horrors already proved to be unworkable on earth. Mars appeared to be the least unfriendly of the planets, so that's where the effort would start.

A Mars project has great attractions. It is difficult, but not so difficult as to be unattainable. It can presumably be represented to have military possibilities; just because you and I can't imagine what they are, it doesn't mean the twisted military imagination is unable to outdo our reasoning. And, without doubt, projects of this size can do wonders for the military-industrial complex.

As I said, the Mars project was the first to be attempted under the "faster, cheaper, better" space policy. So far, apart from a little vehicle which did work, three missions went horribly astray; one, because the computer had been programmed in imperial units while the instruments on board had used metric measurement. Even though the scientific media are still full of projections regarding Mars landings, I doubt if many more are going to be attempted. The cost and complexity of a manned landing is simply crazy.

Talking about crazy, brings me to the so-called international space station which is anything but international. Why is it there? It is all a bit of spite. Mir was up there constantly reminding NASA of the effectiveness of Russian space engineering. Of course, NASA engineers were always trying to discredit the Russian engineers, but apart from at least one major accident due to human error which the station survived in a crippled condition, it still remained in workable condition until the day it was deliberately destroyed. Even the descent was

accurately planned and impeccably carried out, much to the chagrin of the US who were secretly hoping for a catastrophe.

By the time it was abandoned, Mir had far outlived its projected lifetime. Its quarters stank, and many of its systems required lengthy and frequent maintenance. This required the attention of the entire crew with no time left for scientific work.

What scientific work? You may well ask. Mir was built to make a point, that of Soviet space superiority at the time. As far as we know, it had no other purpose. Its successor, the “international” space station has not been given facilities for special discernible experiments. Costing around 30 billion dollars, it is the world’s whitest elephant. Since the attack on the World Trade Centre has made it clear that the US is not invulnerable to attack on its own soil, these objects of exhibitionism have lost their value. The ISS now orbits the earth staffed by what may be given the unfortunate description of a skeleton crew. It is far from finished.

When US millionaire Dennis Tito paid for a week’s ride on the station, he had a tussle with the US administrators (the Russian administration was only too happy to agree). On his return, Tito indirectly gave us an insight as to why his visit was resisted: All the astronauts’ time was spent on looking after themselves rather than on experiments. Also, the assembly of the station was plagued by bugs which should have been ironed out long ago. Indeed the website telling us all this has not been updated since August. Tito confirmed that in his view manned spaceflight was a waste of effort. I bet you didn’t read that in the papers.

Meanwhile, even the Hubble orbiting telescope which has been giving us startling photos of distant parts of the galaxy and of the universe, has, to a certain extent, also been superseded by clever electronics which can use ground-based mirrors with electronic correction to give us even clearer images at a fraction of the cost.

What does all this show? It shows that whatever the origin of complicated and vastly costly so-called science under capitalism, it is generally done to impress, and to provide an ego trip for people in power in the military and in the “big” sciences. And while science which can be pursued by simply observing nature gives us a insights into the wonders of nature, big science and technology is oppressive because its understanding is frequently beyond ordinary human beings.

The world is full of unsolved problems which could be tackled and solved by the application of human skills and knowledge embodied in science and engineering, if only the funds were available. From abolishing infectious diseases to conserving the water resources of the Earth, from doing away with hunger and providing sanitation, the world provides plenty of possibilities for applying human ingenuity. Many can provide involvements of the population. We should be impressed by achievements in the human sphere, not by the gimmicks of capitalist commercial technology.

DIATRIBE 100 - The Commercialisation Of Learning

Funny thing, education! It comes with different labels – learning, study, experience etc. Then there are the sub-groups; primary, secondary, tertiary; and all the specialties ranging from sex education to things like maths, history and so on. My encyclopaedia has more sub-heads under education than I care to count.

The learning process itself is built into every human being. It is part of all animal life and, via the process of natural selection, into all organisms. We learn from the moment we are born, and probably even before then. Every one of our actions is at the same time a learning process; in practice, no two experiences are identical and coping with the difference adds to our store of knowledge. Birds learn to fly, beasts learn to hunt.

It was left to the reductionist minds of some humans to isolate the learning experience from the rest of life. For them, there are good reasons for isolating some forms of learning which lead to power and status: The British upper class had to learn how to rule and religions had to teach adherents the artificial rules of their various cults. Sometimes these rules embodied accumulated experience; more often than not they were arbitrary and taught people to distrust their own observations and believe some arbitrary nonsense written in a book instead.

As our class societies progressed, more time could be devoted to activities not directly connected with sustaining life, such as carving pictures into rocks or building pyramids. Knowing how to do such things had to be learnt, too. So did writing, playing music and playing games. Nearly all these skills involved both mind and body.

Until recently, few people tried to separate physical and mental skills. It was obvious to most people for instance, that you had to have at least a smattering of playing an instrument before you could compose music for it. In time, composers who wrote for orchestras learnt at least the rudiments of many instruments. Conversely, you can’t really expect someone to make an instrument without knowing how to play it at least moderately well. Theory and practice are not just connected; they are one and the same thing.

However, from the end of the 19th century, probably with the rise of industrial society, manual skills started being looked down on, largely because the upper class either could not or would not exercise them. Of course, nowadays a whole new industry revolves around the so-called do-it-yourself concept, I.E. doing what people

have always done and learned within the community. Some of us still have these skills. For instance, last Sunday there was a celebration of 60 years of the Eureka Youth League at their camp which has been built and maintained without so-called professional help. Workers used to take all this for granted, no big deal. It wasn't necessary to sit on a lecture-theatre bench for years to learn all this much of the time; all you had to do as an apprentice was to watch your mates.

There was, in recent times, always a component of book-learning, such as reading and writing and manipulating numbers. If this was done early in life it was little hassle because it is rote learning and comes easily to very young children up to the age of about eight. This is also the age up to which languages are easily learnt. In the days of crafts apprentices started at age 7 and modern school systems start around 5 or 6, probably for much the same reasons.

The rich had organised teaching for their children in a very early period in history, teaching their offspring the sort of alienated practices a ruling class needs to carry out its functions. When the industrial society required skills like the 3 Rs, and when kids got in the way of lengthening the working day for adults, it was natural to extend the type of education previously reserved for the ruling class, even though it was often totally inappropriate for workers' children. This was made worse by the alienation of institutional teaching. Normally, students would be the subject of education, but now teachers became the subject and students a mere object which had to be made to conform to whatever the "educational system" laid down. In a way, this was perhaps the most important lesson for students – learning to conform to the system and "respect authority"

A particular aspect of education for the wealthy was university study. By attending seats of learning which encouraged free debate and a sometimes elusive "academic spirit", those responsible for organising these institutions felt they were contributing to society and in many cases this was true. The acquisition of a ticket to practise a particular profession was a secondary matter; it was seen as the job of lesser institutions, called "trade schools"

In both these institutions it was understood that the benefit of attendance was rubbing shoulders with people who had knowledge in a particular field and – which is important – skills and charisma in passing these skills on. One of the major purposes of the system was to qualify students for the practice of a trade or profession. It became accepted that some of these qualifications, those in the so-called "manual" trades, came from trade schools, while others came from universities and came from so-called "professional courses. The system is as nonsensical as it sounds. No-one can explain why a "lawyer" who does run-of-the-mill conveyancing should learn that at a university, while a chef who has to plan menus and organise ingredients (and often gets twice the pay) ranks as a "trades" person. Nor does manual skill come into it. Would you like to be operated on by a brain surgeon whose only training came from a computer? This brings me to my point.

Successful education is a labour-intensive process. Not only has the subject to be covered carefully and demonstrated to students, but if there are any difficulties in understanding they have to be explained in a way which is tailored to the student's comprehension. Because of this labour intensity, there is intense pressure to automate and depersonalise it. Of course, this can only be done in a very limited range of subjects. You wouldn't wish to treat brain-surgery or playing an instrument by audio-visuals although of course such techniques can help. Yet, every so often, since the end of the 19th century precisely, this has been attempted.

In the middle of the 1890s there was a move towards what is now called "distance education" which employed teachers to back up learning from printed material by mail. This, of course, while very useful for students in remote locations, is much more labour intensive than a lecture theatre, and was soon discarded as a classroom alternative. In the 1950s and '60s the availability of film and still-projectors set off another wave of claims that actual teachers were becoming obsolete. . Today, similar suggestions are made regarding the role played by the internet. This is accompanied by the discarding of perfectly good 16 mm projection equipment to be replaced by video screens which are rarely efficient, because it takes 4-6 TV sets to cover a lecture theatre audience. No doubt, next thing we will convert all these theatres to the next technology – anything to get rid of teachers.

In the midst of this, fewer and fewer people are asking the relevant question: Is this type of instruction really what is needed? Do we have to spend years of our lives to teach everybody the latest version of Bill Gates' lousy software and call it "computer studies"? Would it not be better to start at an early stage to teach young people the sort of skill that will be useful in later life, like how to drive a nail? Such skills are only rarely acquired in later life when hand-eye coordination is going down the drain. With half of young people being overweight, surely physical involvement should take preference over playing computer games and calling it education.

Of course, all of this is linked to our commercial "culture". By constantly changing the medium of transmission of so-called information we create yet more opportunities for exploitation. Universities have long ago ceased to be institutions of learning; they are simply information distribution factories from which freedom of debate is fast being barred. Vice-chancellors have become commercial CEOs who are dispensing with the very humanities courses which used to distinguish the University from the trade school. The clever country? You'd have to be joking.

DIATRIBE 101 - Escape From Reality - Is There Intelligent Life On Earth?

I don't know whether it is just bad luck, but every time I turn on the TV I seem to get hit with yet another sci-fi doco about the future of the world. The sun will get hotter, they say. Humans will find life on earth unbearable - they will have to escape. Where to? Mars of course, or possibly one of Jupiter's moons; not that conditions there are very liveable, for humans. That is, in their view, nothing we can't fix. Just as soon as we have dealt with Bin Laden, that is. After all, the earth wasn't such a hospitable place in times gone by, but it's OK now. Only took a couple of billion years. All we need to do to our new abode is plant a few trees, liberate an ocean full of currently frozen water and find a useful atmosphere. We may, if there are existing inhabitants, also need to import a few rousing CDs with some of George W's more explicit speeches about evil and how it is ingrained in everybody else and therefore also in the Martians, and, hey presto, Mars or Europa, the moon of Jupiter that I mentioned, can be taken over once we have bombed the bejesus out of the locals, whoever or whatever they are.

What is more, this problem seems to be getting desperately urgent. The vivid graphics of the disintegrating sun remind us that the dire fate of an uninhabitable Earth is just around the corner. NASA scientists are beavering away at rockets for the Mars and Europa missions. No doubt, there already are laboratories working on the problems of melting the ice caps of Europa, and producing a few billion tonnes of breathable air on Mars. The commentaries for these fantasies keep on stressing the urgency of the situation by reminding us that "we" need to do this, to ensure "survival" of the human race beyond the time when Earth becomes unliveable.

Just how long, in terms of earth years, have we got before this happens? A mere 3½ billion years. Yes, that's right – about as long as the earth has already been in existence. About a million times the length of time, since the building of the pyramids. Some urgency, you might say. The only conceivable threat to humanity is humanity itself. The present rate of species extinction is vastly greater than the rate during the disappearance of the dinosaurs. And this is not because we are killing these species deliberately; it is what the US would call collateral damage in the war humanity is waging against the planet.

In one way or another all humans take part in this war. The mere fact of population increase with no corresponding increase in sustainable resource production is part of the process. In Australia we have someone appropriately called Pratt talking about a 50 million population by 2050. But even if there were no population increase, we are creating the same effect by growing crops like rice which require lots of water in the driest continent on earth and exporting them to countries with high rainfall. So, while some nations on earth, apart from population increases, live reasonably sustainably, many of the so-called "advanced" nations are making war on nature, and what's more, they are winning.

Can technology help to solve what might easily be the world's terminal problem? Technology can assist humanity in only a very few ways. It can help overcome starvation and disease and it can provide contraception. All this, however, requires an understanding of what the world's problems are. Unfortunately Western science does little to help there. The prototype of the Western problem solver is the committed Mensa member. Mensa, as most will know, is an organisation which puts you through a test to establish your intelligence as they see it. By definition, the people who succeed in such tests are people who love playing games like chess or bridge. Dyed-in-the-wool IQ-test believers actually believe that such tests are not dependent on learning or experience and only in minor ways dependent on age. Regardless of the claims of Mensa, the underlying spirit of the concept is highly competitive.

Even the details of the IQ concepts are nonsensical and highly culturally determined. What has been found now is that not only was the average IQ of the population steadily rising until recently, which seems to contradict the notion of constant and culturally independent IQ, but, shock, horror, the IQ average has started to decline in recent years. The notion of an average IQ is senseless as IQ is supposed to compare a person's intelligence against a population average. From the claim that the average is rising we can see that the test itself was never more than some sort of exam which compared the ability of individuals to answer certain invariant questions. This means that it is highly culturally determined, which explains why people could be classed as intellectually inferior on the basis of gender, skin-colour and place of birth.

However, there is a far more important question arising from this cultural bias: Is not the entire basis of our value system severely flawed? It assumes that life is about proposing solutions for questions posed in the abstract with no reference to human needs.

If we assume, as well we might, that in principle all technical problems have a technical solution, then the question, as to whether the problem should be tackled at all from the point of view of human needs, disappears into the background. This indeed is precisely what the US military is doing. The system applied by the US is one of bomb first, and deal with the effects later, if at all. This means that the US has been alternatively ally or enemy with nearly every country in the whole of Asia and the Middle East. The whole world has become a military experiment for the testing of new weapons.

What does this add up to? We now have the world's most technologically advanced nations treating the earth as a laboratory for people who have no ethics apart from the ethics of power. We have people like Bush and Howard gloating over having "beaten" the voices of reason on the very questions which will make their own survival possible.

The problem is that the rest of humanity adopts a wait-and-see attitude to the catastrophes that are being unleashed on us. Perhaps, coming back to our original line of thought, people really accept the notion that there is always Mars to fall back on. This is nonsense. What with the earth running out of water, out of fish in the ocean and out of air to breathe, there will soon be nowhere to go.

There are signs that the corporations which “benefit” from this destruction and self-destruction, feel compelled to at least make a show of seeing reason. It would be nice to think that this can be taken seriously, but this would be self delusion. Capitalism cannot survive in a state of no growth. Humanity cannot survive except in a state of zero or negative growth.

We need to convince people on the left that capitalism is a disaster not because of its rip-offs alone, but because it destroys human lives to provide toys for the boys.

DIATRIBE 102 - Technological Determinism – Does It Matter?

The world is full of human disasters. You may well ask – does it matter whether technology plays a part in creating them, when the root cause is quite obviously related to human behaviour of elites? Why does Ned Lud waste his time month after month highlighting the shortcomings and the catastrophic impact of technological developments on our society and culture?

The posing of this question is by no means novel. In fact, the ambivalence contained in this question has itself dogged much of modern philosophy. The Marxist left, in particular, has been accused, time and again, of the sort of absurd reductionism which depends on the belief that to every effect there is a simple cause – in this case a direct dependence of the human condition on the state of technology of society of the culture in which one finds oneself.

Let's face it. Such an interpretation of left thinking is pretty justified. Lenin in particular was given to linking the invention of the plough to feudalism and the spread of electricity to socialism. If only this mechanistic linking can easily be shown to be nonsensical simply by looking around at reality. It should also be pointed out in Lenin's favour that he linked his prediction to Soviet Power which may well have meant the power of the small councils originally meant to be the basis of the revolution, not the all pervading state which became the Soviet reality. Anarchists never put forward such a mechanistic view.

However, even if you reject the notion that technology determines the shape of society automatically, there can be little doubt that technological developments form the basis of capitalist society and one of its pre-conditions. In particular, the political basis of the imperialism of the last couple of centuries is unthinkable without the parallel development of weapons technology.

And it isn't just weapons technology. The so-called missionary who sets out with a bag of beads to trade for goods of real value, or even for the land or the trees of the benighted natives, takes with him (or later her) a baggage of religious ideology as well as a mass of political power. Worse still, because the gimmicks the technological culture offers are so attractive to people who are unable to judge what it will take to maintain these millstones which are never used for grinding anything useful, they manage to change the attitudes of previously self-sufficient people to dependence on a cash economy.

All this was understood by technological determinists long ago, except that they considered the sum-total of these effects as “progress”. So ingrained is this value system in our society that we employ, for instance, the cash income expressed in US dollars as the indicator – the only indicator – of people's well-being. By this definition, the tens of thousands of years before money was invented would have made it impossible for people to even exist let alone live well.

Even worse, we have been educated to look down on cultures which haven't (yet?) gone the same way. Every time the US governments embark on yet another of their frequent wars of aggression it is assumed that their perceived enemies will collapse in a heap when faced with the latest murderous technology. As was shown in World War Two and Vietnam and is now being demonstrated in Iraq, ideology and popular networks are far more effective than “high” technology in guerrilla warfare.

Not only is it now generally assumed that “high technology” equals “high culture”, and that both of them are clearly definable, but that they lie along some linear track of natural evolution. This is part of the old Darwinian concept of animal evolution which in turn is pretty much the outcome of the Judaeo-Christian mythology which places “man” at the peak of some imaginary evolutionary pyramid. A moment's thought shows that if survival is the measure of evolution, human beings rate pretty poorly. Microbes do a lot better, having been around for many millions of years and indeed forming the building blocks of “higher” animals such as humans.

Where our culture has gone backwards is in our firm belief that we stand above all other creatures and that after the evolution of homo-sapiens, “thinking man”, came a species called homo technologicus, defined as creatures which no longer need to think. The arrogance of these assumptions is staggering. So is their stupidity. Strangely,

no matter how ingrained assumptions of superiority, luckily in situations of danger the good old instincts still kick in and humans don't confront lions or snakes unless they have first acquired the necessary skills.

The more we "progress" along this "evolutionary" track, the more we ignore our limitations. Understanding of reality goes by the board. If we understood the laws of nature which lead to, for instance, the building of motor cars, we would not bore down city streets at 120 km/h, any more than we would confront an angry rhinoceros on its home ground. One of the definitions of homo-sapiens may well be that of a creature unfit to maintain an environment in which they can survive.

This alienation allows humans to ignore the well-being of living species, including their own. In our environment, this leads to the acceptance that human beings be replaced by machines and, worse still, the notion that this is a desirable goal for humanity. Is not the smile on the face of a child worth all the video games in the world? Is not the joy of playing an instrument, no matter how primitive it is and how inexperienced you are playing, vastly more satisfying than owning the world's most complex sound system?

To go back to our original question of whether the human condition is the outcome of technological development. The answer is surely that this technological development itself is the outcome of human decisions. We shouldn't accept it as a given. Most of it happens in a framework of the class society. It is natural only inasmuch as it is natural for a ruling class to "naturally" seek ever greater power, and technology provides this power. No matter what the spin-doctors of industrial technology tell you, the well-being of humanity is, at best, a by-product of technology. Even if it becomes one of the purposes, you cannot be certain that the negative outcomes will not outweigh the positives because in most cases the very development of a new technology is an ego trip for individuals rather than an achievement for society as a whole.

Brecht reminded us that what is normal is not necessarily natural. That certainly goes for most of our society.

DIATRIBE 103 - Feeding The World – They Must Be Joking

The world is full of suspicion and cynicism. It is very sad. Every time a multinational corporation comes out with a statement that they have discovered a way of feeding the hungry world, some bastard comes out sneering.

But then, there is something odd about the way these corporations always want to solve other people's feeding problems, and cure their sicknesses. For instance, if the US and its capitalists want to solve world hunger, they could start by forgiving third world debt. If they wanted to improve health, they could stop selling arms to countries who use them against their own healthy people. Think of how many lives and limbs could be saved if the current wholesale mining of the border between India and Pakistan were stopped. Or, indeed, how this multinational generosity could be applied within their own country; after all malnutrition and just plain hunger abound in the good ole' US of A. Or think of how the problem of TB, largely caused by foul living conditions was once almost solved there, but is now recurring and spreading. That, however, is another story; we know from the Australian example that these people simply bring it on themselves because they "just don't want to work". Just ask these two clowns, Abbott and Costello. From the number of times they get interviewed on air they must surely be experts.

Irony aside, why do multinationals and their governments always insist on claiming to know how to solve other people's problems, when they contribute next to nothing on solving our own? And why do they insist they want to "help"? And how is this help related to the nature of the solutions they are proposing?

Let's have a look to some of the agricultural "solutions" put forward in the past. Remember the "green revolution"? It was supposed to greatly increase the yield of rice, the world's most widely used food crop. When the details were revealed, it turned out that this "solution" meant massive use of fertilisers which the third world farmers couldn't afford. It also meant the increasing use of large amounts of precious water. Finally, it meant the purchase of seed stock, which peasants couldn't afford either. Worse still, once you plant crops which rely on artificial fertiliser and chemical pesticides, the natural process by which nutrients are transferred to plants from the soil as well as natural pest resistance are often impaired; the process is almost like a plant addiction to drugs. When you stop feeding the addiction, the withdrawal symptoms are disastrous. In perennial plants it means that you get no crops for up to three years if you change back to organic crops. The milk of human kindness is highly diluted as well as polluted when it is supplied by multinationals and the governments they own.

So the Green revolution didn't last very long in poor countries, and in many cases had disastrous effects. This doesn't stop journos in rich countries from referring to the green revolution as if it had actually come about and had brought benefits to the Third World.

Luckily, there is good news too. Poor countries are twigging that all the hype about "feeding the world" by transnationals is self-interested bullshit. Firstly, as we said, they have no intention of doing it. Secondly, even if they did want to do it, they wouldn't know how. The western mind-set is firmly anchored in technology, and wherever technology is the answer you have asked the wrong question. Instead, in India and Africa there are now homegrown movements starting from the bottom up. This doesn't mean that they won't accept some

western technologies if they are considered suitable; it does mean that if water shortage is the problem, for instance, you don't start off by buying the world's fastest computer. It also means you don't treat scientists as infallible gods sitting in ivory towers but you expect them to work within the community. And their rewards are not measured in six-figure US dollar salaries, but from the appreciation of the community on which their work is based. Some are referred to as barefoot scientists, as they were in the old socialist China. To coin a phrase - Barefoot scientists keep their feet on the ground.

These movements aren't new. In Rajasthan, northern India, following the footsteps of Mahatma Gandhi, 30 years ago, an illiterate farmer and a team of other barefoot architects designed the Barefoot College, more properly called the Social Work Research Centre, which is built from local materials using local techniques, by a handful of graduates from all over India. Their goal was to improve the lot of the poorest of the rural poor, while themselves living on a bare minimum. Even to-day, in class-ridden India, these leaders and their visitors sit crosslegged on the floor to eat their vegetarian meals. The building, which last year won the Aga Khan's award for architecture has numerous structures to collect water, but contains no class-rooms or lecture theatres – the training is entirely hands-on. There are barefoot solar engineers, pathologists, architects, midwives, mechanics and teachers. The college's 200 full time and nearly 300 part-time staff are nearly all local. No-one gets less than the legal minimum wage, around \$A2 a day, and the maximum is set at 1 ½ times that. That goes for the founder of the college, too. The actual teaching takes place in the 100 or so surrounding villages and consists of night schools for goat herders, water committees, women's groups and projects involving education, hygiene, rainwater harvesting and solar energy – in short, the village's needs.

Even though the college has been in existence for 30-odd years, the change appears unspectacular. Women still do most of the work; wielding pick-axes and carrying heavy loads of water from distant wells. Near-feudal conditions still prevail, with illiteracy, poor hygiene, bonded labour, untouchability and exclusion. However, here and there, alongside of backwardness, there are signs of change. There is technology. A concrete tank supplied by pumps electrically driven from solar panels, supplying water directly to households from underground aquifers.

This has a dual effect. Apart from tackling the water problem, it by-passes the caste system. As one of the founders points out, "we have come to the conclusion that they (poor women) using their own knowledge, skills and practical wisdom, can solve their problems themselves".

One woman who came to the college with two years education, which left her still illiterate, after a month's training was able to service the hand-pumps previously maintained by an engineer from a distant town at great cost. She did this for nine years, at the same time training dozens of others. She also assisted in the installation of the piped water system. She has now retrained as a solar engineer, making, assembling, and repairing the solar lanterns which are used to illuminate the night study areas for the women who spend their days working in the fields. Apart from supplying most of the labour involved, villagers also pay for the materials. This is made possible by the collective nature of the enterprises.

Of course, with so many privileges threatened, resistance to the scheme has come from the privileged in the area. It included a siege by local landowners, and a merciless audit by the state which retaliated when the women exposed a scam in which poor women were swindled out of their pay for road construction work. As the founder says "the biggest problem is convincing our own kind – educated Indians". I fancy that's the problem in Australia as well Think of the problem we have convincing people of the value of alternative energy sources or the need to reduce the use or power of motor cars.

The College refuses to play ball with imported experts for the reasons I mentioned earlier in this talk. It is not that ignorance is bliss, but inapplicable knowledge may well be disastrous. This story also explains why our masters are so keen on globalisation instead of the application of local expertise. As I said before, if hi-tech is the answer, you have probably asked the wrong question.

DIATRIBE 104 - To Scan Or Not To Scan – Medical Diagnostics In A Commercial World

In another life, one of my first jobs was the design and construction of electronic exposure timers for the mass X-ray program run by the Victorian Health Department in the 1960s. By taking chest-Xrays of all and sundry, the Department was convinced they would eradicate TB and lung-cancer. The units consisted of large caravans where one end was a cubicle containing the X-ray unit and the rest was an office for doing the paperwork.. Not only were there several of these mobile units, but public hospitals were also dragged into the act. If you had an accident and broke a bone, before the Alfred Hospital would set it, they would insist on taking a chest X-ray. I know this because it happened to my partner. It was common knowledge; indeed most people regarded it as a very useful service.

40 years later my view has changed somewhat. The X-ray exposure itself had a known risk of inducing cancer, or so it was believed. There were two things wrong with this belief. Firstly the link between irradiation dosage and cancer was greatly underestimated, perhaps by a factor of 100. Remember, those were the days when

every shoe-shop sported an X-ray machine which allowed you to look at the fit of your shoes. This was bad enough for the users, but must have been horrendous for the shop-assistants working in the vicinity. (They had shop assistants in those days). Those were the days when soldiers and expendable civilians alike were subjected to the flash from nuclear weapons.

As an X-ray technician testing the timers I had designed, I may well have had one chest X-ray every month. Although we knew that we shouldn't go overboard on these tests we did regard them as a bit of a joke. We used to string messages composed of lead letters across our chests. Technicians do such things. It was deadly funny.

The other thing that was wrong was that these were not ordinary X-ray photographs. In itself, a chest X-ray requires the largest dosage of all diagnostic images, given the depth of tissue that has to be penetrated; these, however, were not photographs of the X-ray image itself, but fluorographs, photographs of a fluorescent screen using a 35mm camera requiring a dosage many times that of an X-ray photo. No wonder that some time later it was discovered that the random X-rays actually caused more disease in the way of cancers than they detected. This should not surprise us. If you wanted to catch a particular species of fish, you wouldn't cast a line anywhere into the middle of the ocean; at least you'd pick a spot where fish are known to hang out. And you wouldn't fish with dynamite which kills all fish, not just the ones you want.

The days I am talking about were a time when these measures were decreed by the state. The incentive for rushing into dubious decisions therefore lay largely with bureaucrats and empire builders. The equipment used was locally built (that's how I got involved). Things have changed in that area. Much of the diagnostic work is privatised; many factors offer incentives for supplying unnecessary services. And where in earlier days the X-ray equipment was amongst the more expensive diagnostic item, nowadays diagnostic equipment ranges through nuclear medicine, cat scans, MRI equipment, ultrasound scanners and other gear costing up to half a million dollars or more per item. There is surely a massive incentive for the diagnostics firms running these expensive services to offer financial incentives to GPs to overuse them, and kickbacks are common.

Some of these tests are very effective – usually the ones which are run where there is a suspicion of a disease or disorder. But when it is just a matter of routine, things are not so clear-cut. The cheap ones such as cholesterol and other blood tests can often be performed by medicos in-house.

Once you get into the really high volumes of testing things get hairy. The diagnostic chain almost always involves human beings who are fallible. As in every industrialised process, there are bosses who want to speed up processes which rely on having a clear head and being able to concentrate. When you stare down a microscope all day looking for abnormalities in cells, or doing counts, the chances of making mistakes are very numerous. In process checking of factory-made components, few industries nowadays employ 100% checking because, paradoxically, such checks are less reliable than sampling. In checking samples from pathological tests 100% checking is the only way to go. I would regard routine checking of large number of items as the most tiring activity I know, even though it involves little physical activity – or perhaps *because* it involves little physical activity.

It is little wonder that we recently had the case of a withdrawal of the licence of a firm engaged in the evaluation of Pap-smears. There have been many cases of wrongly diagnosed chest X-rays, and court-cases resulting from women being declared clear of cancers when they developed tumours within a short time of their scans.

Some of the practices in the diagnostic area are bizarre. For example, cervical cancer in women is about as frequent as bowel cancer in both sexes. Prostate cancer is so common that nearly every man who dies after a reasonably long life is found to have had it. Prostate cancer progresses so slowly that few men die from it. Yet many men are operated on for it, with awful side-effects of incontinence and impotence as well as pain.

I have never understood why women are pressured into regular pap-smears when older people of both sexes are positively dissuaded from colonoscopies which can be life-saving. What is more, bowel-cancer is genetically determined to a large extent. If your sibling or parent has been diagnosed with bowel cancer, you have a 50% chance of getting it too. I am alive today because I demanded a colonoscopy after my brother died of bowel cancer. In my case, a polyp the size of a grape-fruit was removed. This after 10 years of bowel problems, which were “diagnosed” as being due to an irritable bowel.

Why am I raising all this? Because once again the question of breast-cancer has been raised within the medical profession. In certain countries, including Australia, breast screening by mammogram (which is a form of breast X-ray) is pursued with almost religious fervour. While the mammogram itself carries little risk, misdiagnosis results in unnecessary breast removal, or other cancer treatments which are almost equally invasive, such as chemo-therapy, radiotherapy or surgery only marginally less traumatic than a radical mastectomy. Breast removal is a heart break for women at any time, but to think afterwards that it may not have been necessary is a double blow. The facts, unfortunately, seem to speak for themselves.

In a Scandinavian review of seven previous trials, researchers found that five were deeply flawed and the other two showed that where there were positive results from surgery, these were cancelled out by deaths from complications from the unnecessary treatments. Put bluntly, the treatments were killing as many women as they were saving. The same goes for tests in other medical areas. Unfortunately, the controversy which rages in the medical profession over these uncertainties is not always dispassionate or disinterested. The prestigious medical

journal *The Lancet*, because of protests, published the report in two contradictory versions. Every time some new diagnostic procedure is developed, it is likely that a new controversy will arise which will only be settled by experience.

What does all this add up to? Firstly, that there are lots of considerations in releasing any new medical procedure or treatment into the world. One of the least considered and yet most important is the reaction of the patient, which can do a lot to either help or hinder the healing process. My brother, a convinced atheist and sceptic, once helped, against his better judgement, to finance a trip to Lourdes by a workmate who suffered from a cancer which was pronounced incurable. The cancer went into remission. What we can insist on, however, is that commercial considerations should not enter into the choices of treatments which, ultimately, have to be left to the patient, who needs to decide on the basis of the best available evidence rather than the latest sensationalist advertisement.

DIATRIBE 105 - "Benefits" Of GMOs

The resistance in most countries, including ours, to genetically modified crops comes largely from the fact that most of us realise that there are no economic benefits for us in polluting our food, whereas there is plenty of risk.

Firstly, let's look at the sales hype. We have been told, over and over again, that it's all about feeding the world. Seeing that the multi-nationals pushing these technologies are all centred on the US, we don't have to take their protestations too seriously. So, for a change, let's look at what they are telling their own people. Of course, US citizens and corporations are not assumed to be too interested in feeding the world on anything except bullets, so in the good ole US of A there is a different tune. It is all about how much money GM foods are saving the US farmers. More recently, the GM lobby has released a so-called analysis, telling the world that although maybe GMOs are not going to banish hunger from the world in the short term, they are sure going to banish emptiness from the hip pockets of agribusiness.

The report looked at eight GM crops planted in 2001: herbicide-resistant soybeans, canola, insect resistant corn and cotton; and virus-resistant papaya and squash. Would you believe, the US, according to the report, saved 1.2 billion dollars in production costs, and produced 1.8 million tons of extra crops? Sounds impressive, doesn't it? Mostly, the claimed improvements happened in two areas: Soybeans engineered to tolerate the herbicide glyphosate are supposed to have saved a cool billion, and crops engineered to resist the European corn borer raised the theoretical yield of corn by 1.6 million tonnes.

Let's look at the money saved by the use of glyphosate-resistant soybeans. These were not actual soybeans, but what in today's jargon would be referred to as virtual soybeans. They are the soybeans which would have been grown if some weedicide other than glyphosate had been used. And there are lots of ways you can hold down the weeds which get into soybeans other than using glyphosate. As in the good old days, you can cultivate the paddocks, you can use organic methods. And hold on, this is not about not using glyphosate – it's about making the crops resistant to using **more** glyphosate. And who sells the glyphosate? You got it in one: The same Monsanto which just happens to sell the GM seed.

Actually, a chap by the name of Benbrook has done his sums and reckons that by the time you add it all up, weed control using glyphosate makes life a little bit easier as far as labour-costs are concerned, but by the time you work out overall costs, there is nothing in it as far as actual savings are concerned. There is, however, no doubt that Monsanto's bank-account benefits considerably.

And how about the extra corn? Yes, says Benbrook, the improvement in crop yield is there, all right. But it is far from impressive, taking the overall size of the crop. It amounts to less than 1 percent of US production. And the overall savings of 1.2 billion dollars is about 1 percent of the total income from annual crop sales.

That's where the virtual bit comes in even more. The spokesman for the biotechnical Industry association, Leonard Gianessi, says you have to add the **potential** gain from some 32 other crops that **could eventually** come on the market. Even if you are prepared to concede this sort of sophistry, the figures are hardly impressive. The spin-doctors are talking of less than \$US1½ billion at the most, round about 1% of the amount of subsidy recently voted to the US farming sector.

Which brings us to the hoary old chestnut of "feeding the world". Most of the crops we have been talking about don't get consumed by humans. They go to feed animals. But even there we should remember that there is a food surplus in the US. Nobody actually wants the extra product except to manipulate the market. And, despite their protestations, the last thing the GMO producers want is to feed the Third World free of charge.

So what? If one lot of US capitalists want to develop a spin on the work of transnationals which is light-years away from reality, isn't that their business? And if a lot of the US citizenry wants to believe this bullshit, isn't this what you would expect? After all, they believe in New Age Crystals, in religious fundamentalism, even in George W Bush. With a substantial part of the graduates of universities now going into PR, of course you wouldn't

expect the so-called scientific community to tell the truth, particularly if they can finish up rich by telling lies, or jobless for telling the truth.

It isn't as simple as that. The old saying goes that where ignorance is bliss 'tis folly to be wise. However, in this case ignorance is not bliss. The US being immensely powerful, we cannot afford to let their lies go unanswered. This applies particularly in fields of science and technology. GMOs are a good case in point.

Australia is dependent on food exports; we are known everywhere as suppliers of "green" produce. There is no way we can maintain this reputation if we become known for technologies which, almost overnight, create basic changes in foodstuffs which normally take hundreds or even thousands of years to develop by normal agricultural methods, thereby allowing us to develop a wealth of experience. But in this case, not only do we experiment with modifications which are impossible to reverse. By making plants impervious to what may be natural weedkillers, we also set ourselves on the path of pouring chemicals on and into the soil which will be rendered poisoned for years to come.

And all this for what? Primarily, of course, to maximise the sales of the products of one transnational corporation. But take the case where there is indeed a considerable improvement in yield in a GM plant variety. This will undoubtedly be exploited by agribusiness rather than local farmers, creating a mechanism to further impoverish local subsistence farmer communities, spelling disaster for them.

It is unfortunate that many Australian green groups concentrate on the danger of poisoning through unexpected problems in connection with GMOs. Even if – and particularly if – these organisms do precisely what they are meant to do, the effects on local populations will be appalling. Think of it this way: if there were little or no effect, why should there be a market for the stuff? GMOs, if nothing else, present yet another mechanism for the dispossession of the poor of Third World countries.

Finally, there seems to be a new feature in the way in which this and many other technological changes are forced on often unwilling citizens. In the past, there were some attempts to invent mythical advantages in order to persuade consumers to go along with the changes. This time round, there appear to be no such attempts. Instead, the changes are forced on us by using the coercive apparatus of the state. There is obvious bribery of politicians, as our experience with the labelling of GMOs shows. Indeed, politicians and transnationals combine to show us "who is boss". This is particularly obvious once it is shown, as in this case, that except for the transnationals, no-one benefits financially in the way business operates as a result of ordinary market processes.

This represents a further stage of capitalism, where coercion replaces exploitation. We have to resist, if only by refusing, as far as we can, to buy goods which are not labelled, or which are made by corporations whose practices are objectionable either in the way they treat us or treat their workers. Unfortunately nowadays this becomes almost a full-time job.

DIATRIBE 106 - GM Crops Revisited

Last time, we looked at the way in which genetically modified food organisms were of little value to anyone other than Monsanto and the other multinationals who inflict them on the population at large. This time round, we will take a closer look at the risks involved in spreading these crops.

Just a quick look at what genetic modification means. All properties of life are packaged in units called genes, either separately or in combination these genes govern the aspects of life which determine what the organism does, how it grows and propagates. We can determine what genes there are in plants and animals. The total complement of genes in an organism is called the genome, and it can be mapped by modern methods.

Listing the genome doesn't mean understanding how it works to create the organism's characteristics. By cutting one or other gene out of an organism's complement, we may discover what roles it plays, or rather some of the roles it plays.. Up to recent times, we had to rely on natural changes or mutations to create changes in plants and animals by selective breeding, a process which over thousands of years has given us the range of useful crops and livestock which has enabled humanity to populate and indeed over-populate the planet.

Modern genetics by-passes this process. Having discovered a gene's properties, we may insert it if we want to create its wanted characteristics in an organism, or we may cut it out of an organism to eliminate an undesired trait. Whatever is done to the gene complement will be replicated in the normal way when the organism multiplies. We are constantly told there are no risks or few risks in this process; after all, selective breeding has gone on for thousands of years. And ever since the turn of the 19th century when an abbot in what is now called the Czech Republic called Mendel discovered the rules of the breeding game called the laws of genetics, it has been done with great success by plant and animal breeders. And the genetic modifiers tell us that what they are doing is no different.

This is nonsensical. Selective breeding is a slow process; if mistakes are made, the resulting organism is either infertile or indeed cannot survive. You can mate a horse with a donkey to get a mule, but this cross is infertile.

You cannot mate a dog with a cat. You cannot cross a variety of wheat with a fish, for instance. There is, however, nothing to stop the genetic engineers from inserting a fish gene into wheat to achieve a certain result, and this is done.

However, apart from the desired results, there may be others which you cannot predict. You may make a variety of grain resistant to a bug, but you cannot then be sure that if this gene gets into a weed, this weed won't become resistant to its natural predators. Of course, the genetic engineers tell us that this either cannot happen or is unlikely. As long as you leave a few hundred metres between crops, for instance, there will be no cross-pollination.

Even if we were to trust them, cross-pollination is not the only way an unwanted gene can spread. An unmodified grain of wheat may look precisely the same as a modified one. In fact this is the very argument used by the genetic engineers. After all, they say, if it looks the same you have nothing to worry about.

So much for their theory, or at least the theory they would like us to believe. Unfortunately for the industry, reality has now intervened, as it has a habit of doing. Despite the GM industry's claims, evidence has surfaced in the US and Europe that GM crops can and do interact genetically with weeds. And instances of mix-ups of GM materials, some of them in Australia, proliferate. In France, it was found that GM varieties of sugar beet regularly exchange genes with their wild cousins, and the same effect was found by researchers at Ohio State University in sunflowers. This is not a serious problem in areas where the entire crop consists of an introduced species.

It becomes serious, however, when the GM variety competes with a local strain as in the sugar beet and canola which occur naturally in European countries. The justifiable fear is that in these countries, the introduction of a massively more resistant strain will interfere with biodiversity.

Recently, Ian Lowe of Griffith University revealed that a three-year field trial of GM canola in Britain has been scrapped because the original seed was found to be contaminated with antibiotic genes. Aventis CropScience, the company responsible for the boo-boo, recognised its mistake and notified the regulatory authority. Not only was the seed they planted not the one they had been granted permission to grow, but the inclusion of anti-biotic genes raised the chance of them passing into livestock or humans via the gene swapping process.

The UK government ruled that the entire crop on 14 sites spread over 8 different counties would have to be destroyed. Aventis says it is confident there has been no negative impact on bio-diversity.. Big deal; how do we know that the rogue genes haven't already passed into wild varieties of oilseed rape growing in hedgerows surrounding the experimental plots?

All this news has come at a bad time for the genetic manipulators. Some European countries, such as Greece and France, are already hostile to the ideas. Why wouldn't you be? Most of us have been in farm sheds stacked with unlabelled or badly labelled drums, many with toxic pesticides. The concepts of keeping seeds apart, when they are totally alike, is far fetched.

There are however, some countries that are more receptive to these ideas. One of them is Britain, where the government loves experimenting on crops and livestock. Why, one might ask, after their experiences with Mad Cow disease, Foot and Mouth disease, and other recent scourges? Eliot Morgan, Minister for Environment, Food and Rural affairs (what a mix!) recently told media that his government was under "enormous pressure" from the biotech companies, the US government and the World Trade Organisation to allow the planting of GM crops. Blair's Third Way clearly finds it hard to resist these pressures, even though he has little difficulty resisting UK farmers and consumers who don't want a bar of this polluted muck.

Why the resistance, when the knowledge of the dangers and shortcomings of the experiments is carefully suppressed, as it is in Australia? In this period of rampant economic rationalism, the ideology officially promoted works against the corporations. As I pointed out last month, the greatest stumbling block is the utter inability of the GM hucksters to project any advantage, financial or otherwise, for the use of GM crops. So, despite the bizarre concept of actually paying farmers for planting these trial crops, all that has resulted so far is grief.

I am flogging the notion of resistance to the multinationals because this is one of the few fights we can win. World-wide opposition together with billions lost in useless PR campaigns and bribes to farmers, has already resulted in one multinational company abandoning their financial interest in the GM concept.

We owe it to our kids and to our farmers to keep up our resistance!

DIATRIBE 107 - Longford Disaster Revisited

An article in the *AGE* of 27/9/02 by Jim Ward, shift supervisor, recalled events at the Longford Esso Gas plant when it blew up on Sept.25 1998 - this killed two workers instantly, severely injured eight others, and interrupted Victoria's gas supplies for a fortnight. The disaster came back into the limelight a couple of weeks ago when civil action came before the court.

Let's start at the beginning. Like cities the world over, Melbourne sported numerous plants for turning coal into gas and storing it in massive inverted containers usually popularly but incorrectly called gasometers. Originally these plants were privately owned, but later they passed into state ownership, administered by the Gas and Fuel Corporation. Like electricity, gas was something you took for granted, except once a month, when you were presented with the bill.

When natural gas was discovered in Bass Strait and was exploited by Esso, the scene changed. All appliances had to be converted and we had to put ourselves at the mercy of a private monopoly as part of the bipartisan "competition" policy. As usual, the government and the privatisers had promised that a private monopoly would allow these plants to run "more efficiently" and, no doubt, the salaries and bonuses of the top brass depended on these savings. Where would they come from? In the case of natural gas, this was difficult to see, because it was always produced by private industry, and there weren't many factors you could change, except the level of operating staff and of maintenance.

Maintenance has always been a moot point in industry. Seen from a bean-counter's perspective, it is a dead loss. If it ain't broke, why fix it? If it's only half broke, when do you start fixing it? Broadly speaking, there are two lines of thought on maintenance in industry: Breakdown maintenance, where you wait for a catastrophic failure before attending to problems, and preventive maintenance, which relies on experience in inspecting and evaluating the state of a machine or system, to decide on the need for maintenance.

There are other considerations. One is waste and pollution; a leak in a compressed air line can easily cost \$20 a day. Many factories I know when shut down over the lunch-hour sound like a bag of snakes with all the air leaks, and feature pools of hydraulic oil at around \$5 a litre. This makes quite a sizeable hole in the operating budget. However, managements are generally prepared to wear this, while equal sums spent on a maintenance fitter's wages to fix the leaks would send them into paroxysms of paranoia.

Another reason for maintenance is workers' health and safety. From the start of the industrial revolution workers have been routinely incinerated while locked into their workplaces, slowly poisoned by chemicals, or maimed by preventable working conditions. Much so-called dangerous machinery can be made safe by the addition of simple guards, at virtually no cost. Preventable catastrophes such as Bhopal, which cost ten times as many lives as the twin towers collapse; the ongoing death and suffering of Australian workers affected by asbestos in similar numbers; mineworkers the world over; and damaged backs in lots of industries, are all witness to the neglect of human beings once they enter into a wage relationship with their masters. Almost daily we read or hear about bosses fined for disabling guards which they believe "reduce productivity". For every one we hear about, how many are there actually? Often this is not just due to neglect, but to a subconscious desire of the boss, dependent on the workers, to punish them; how else would you explain the attitude of Ministers in government? Or the attitude of the IMF, who at this moment is pressing for further punishment of Australia's unemployed and lowest paid workers?

However, let us get back to Longford. The purpose of this plant is to separate and refine the natural gas from the stuff that comes out of the ground into the various components, which are used in homes and industries. This, at various stages, involves compressing and expanding the gas which, in turn, either liberates or absorbs heat. This heat has to be supplied to, or withdrawn from, the process by heat exchangers, in a system akin to your domestic refrigerator, which has been known and quantified since the beginning of the 19th century. The process is controlled by thermostats, and normally doesn't need human intervention. Being as old as the hills, it requires a minimum of technical education to operate.

Sept. 25 1998 was unusually cold, so gas consumption was high. The valve operated by the thermostat which regulated the flow of heating oil through the heat exchanger had been playing up, and ultimately the heat exchanger reached around -50 deg Celsius. Long before this point had been reached, safety equipment should have shut the plant down. As I understand it, this safety system had been immobilised.

When metals get cold they tend to get brittle. Melbournians know this from the collapse of the King Street Bridge on a moderately cold morning, due to the wrong metal having been used in its construction. Most motorists also know that if your radiator runs dry and overheats and you are stupid enough to pour cold water into it, you can most likely say good-bye to your engine block and a couple of thousand dollars, You can also say good-bye to the use of your car for a week or so. All these elementary points were either unknown or forgotten in the heat (or should I say extreme cold) of the moment. Workers, with the overwhelming desire to keep the gas flowing, admitted warm heating oil to the heat exchanger, which promptly cracked and exploded with the internal pressure. This was the first explosion. It instantly killed two workers. The second, bigger one, occurred when the escaping gas caught fire in a huge fireball with a smoke column visible for many kilometres away. It was then found, I believe, that the fire made the valves which needed to be turned off inaccessible, and it took a relatively long time to shut the gas flow off, and a fortnight to restore anywhere near normal gas supply.

The first reaction of the company was to hire lawyers. Their first reaction, in turn, was to blame the workers, particularly Jim Ward who had in fact behaved heroically. A Royal Commission quite properly placed the blame with the company; nobody could restore the workers to their families. A satisfactory outcome? Not on your life.

In his recent *AGE* article, Jim Ward blames the workers. They were the ones to do something – they should have spoken up when the bosses got stuck into the maintenance work-force. Yes, he says, they might have got

the sack had they spoken up, but that would surely have been better than risking their and their mates lives. Well said, Jim. There are, unfortunately, a few snags in your argument. Firstly, courting the sack in the Latrobe Valley, which has Victoria's highest unemployment rate, is not the sort of courage many people can muster. Not everybody can become a consultant. Also, where would you nowadays find a job which isn't run by the sort of bosses you find at Esso? Apart from this, have you ever heard of a thing called a black-list, which operates against whistle-blowers. Finally, who says that anything would have been done about the short-comings at Longford had a mere worker spoken up? Who would he/she have addressed?

I can speak from experience here. In another life I was plant engineer in a medium-sized rubber factory. When my bosses found out that I had a maintenance schedule on our wall, they took umbrage. Machines could be serviced when they played up, I was told. Had I followed their prescription it would have saved all of one hour of a fitter's labour a day. As it was, I simply rolled the chart up and kept it in a drawer where all fitters could access it and follow it as before.

Of course, this was 45 years ago. To-day, I would just arrive at work to find a memo with a list of the fitters who had been given the pink slip. More likely than not, my name would be amongst them. The maintenance job, if it were done at all, would be done by contractors with not a skerrick of experience with our plant and machinery. And, on the basis of this "savings", the managing director would demand an extra half million dollars or so added to his bonus at the end of the year. And, more likely than not, publicising the "savings" would add 5% to the share price. If the plant blew up, we would be told it was an act of God which couldn't be foreseen because it had never happened before...

DIATRIBE 108 - Hi-Tech Murder – The Real Terrorism

We have entered a new phase of so-called terrorism. Old-fashioned terrorism invariably had clearly defined targets. For instance, we could definitely identify the so-called Hilton Bombing as a piece of secret agency provocation because it was not linked to any identifiable political or religious group. Indeed, one reason why the Establishment was so keen to demonise non-existent terrorism when communism became unworkable as a stalking horse was the fact that what attacks there were carefully directed against high profile targets who got little sympathy from the people at large.

Today's terrorism often resembles war in its indiscriminate nature. It can be argued to give war a bad name. Perhaps half the victims of the NY Trade Centre destruction were low-paid workers from third-world countries. The failure of the perpetrators to publicise their motives showed that they were fanatics who were unable to give even the slightest justification for the mayhem they caused; this was not even marginally mitigated by their own bravery. The ultimate effect was to brand the whole action as criminal madness. This was in stark contrast to the suicide bombings in Palatine which, even if they are seen as often indiscriminate, can be explained as acts of extreme frustration, and are often claimed by individual groups. None of this compares with the state-imposed terror of a military machine.

However, the war-hawks of the US are having great difficulties trying to invent a term which they can use to separate state terrorism from popular actions; this is made worse by the way much of the latter has been supported by national governments, particularly the US. Typical of state terrorism is the extreme cowardice of its planners and perpetrators.

Nowadays, much of it is inflicted from the air by highly trained men who will never see what happens after they press the buttons. When this first happened in WWII with destruction rained on civilian targets like Hiroshima and Dresden, some of the personnel involved were shocked to the extent of refusing service in subsequent actions. However, the more those ordered to do these horrific deeds get physically distanced from the results of their actions, the more they tend to view them as some sort of computer games from which they can morally distance themselves. I remember letters written by a German airman describing the pretty patterns made by refugees he was machine-gunning on the roads below as they desperately tried to find shelter at the roadside – the WWII version of a present-day arcade game.

With unlimited funds to play with, the designers of to-morrow's wars have created entire industries based on automating and roboticising death. For this you don't have to be very bright, nowadays. In the past, the US had lots of ideas which they put on ice because the USSR could have just as easily implemented them; indeed, in some of these technologies the USSR was far ahead. The US therefore was quite happy to support international moves to have these technologies banned.

Two of the areas I am talking about were the military use of lasers and weapons in space. Perhaps we should look at the actual techniques and why they are such a threat to humanity. Lasers work by bundling light into extremely narrow beams of almost completely parallel rays. Originally they were termed a wonderful technology looking for a practical application, but that is a long time ago. Nowadays there would be few households in the western world which don't use lasers, the most common being CD players.

A CD is not dissimilar to an old-fashioned record which is played by a needle which is deflected from side to side or vertically in a groove. The CD does the same thing to a very narrow beam of light which is encoded by speech or music or pictures. Because the beam is so narrow, it can read pits which are very close together; indeed the minimum distance is determined by the wavelength of light. Invented around 1960, the laser is very much an offshoot of the cold war, although it was initially rejected by the military because it was seen as a gutless "Mickey Mouse" device which, at best, could blind soldiers on the battlefield. However, very soon hugely powerful lasers were developed which now find applications in cutting glass and steel, in surgery particularly eye surgery, bar-code readers and many other fields.

So concentrated are laser beams that a laser beam generated on earth would still be only a kilometre in diameter when it hits the moon. Even the tiny lasers used in CDs come with a warning to the user, although this generally concealed in the works.

Imagine the wonderful things the military could do with one of those on the battlefield, let alone in space. Like a small boy with a magnifying glass using the sun to burn holes in a school bench or indeed, shrivelling insects, the military mind would love to have a weapon allowing them to incinerate individuals and whole cities just like they incinerated Hiroshima, Nagasaki and Dresden. And, as we can see currently, these power-brokers love to equate technological gimmickry as moral superiority, whereas in the past warriors were generally ashamed to exploit their weapons superiority in cowardly ways, once you see your adversaries as no more than beetles, you are unlikely – unless you have been brought up in a humane society – to feel anything other than delight when a beetle explodes in the beam of your magnifying glass.

Similarly, we can now see the US military itching to use nuclear weapons just as General Groves did in WWII when he was urged to merely demonstrate their awesome power to the Japanese.

One of the results (the intended results) of ever more realistic simulations of war and mayhem on games, films and TV is that it robs people of imagination. The endlessly repeated shots of the exploding Challenger shuttle ultimately made it hard if not impossible to imagine the feelings of the seven human beings alive and imprisoned in a capsule until it impacted on the ocean. Closer to home, we have victims of our insane form of transport simply described as the "road toll". This kills as many people as the Bali blast every few weeks; these victims too are largely young with their lives before them. Yet every day we see ads for cars which publicise as highly desirable the very qualities which make motor vehicles the killers they are. It is clear that most of the compassion shown by our politicians with the Bali victims is a cruel sham

In the wake of the Bali disaster we have heard people express the wish to tear the perpetrators limb from limb. If they had any imagination left, they would remember that this has already happened. In the supposed retaliation against Bin Laden, some 3000 people, men, women and children were dismembered and incinerated.

The more we mechanise violent death and human suffering, the more we lose our humanity. This is the ultimate purpose of demonising enemies as terrorists.

DIATRIBE 109 - The Amazing Horror Of The Bonsai Kittens

If you are on the internet the chances are that you know all about it. Last year a story started circulating on the net about someone breeding kittens in a bottle. It came with "full scientific detail" which made it sound plausible. It was followed at short order by a chain letter, possibly originated by the same hoaxer, protesting against the inhumanity of raising Bonsai Kittens. There is even a website protesting that the launching of such hoaxes blocks up the internet. How much of all this is relevant?

Firstly, are Bonsai Kittens possible? I haven't the foggiest notion. With the prevalence of genetic manipulation, if this is a "problem" which can make money for some-one, it will be done. We have all seen the video of a mouse growing a human ear. If there is a gene for growth or a combination of such genes, the production of lion-sized cats or mouse-sized lions will undoubtedly be attempted. Consider the efforts being made to recreate the Thylacine, at a time when still existing species are going extinct at unprecedented rates. Let's just hope there are no specific growth genes.

As for humans (so-called) capable of inflicting this sort of cruelty on animals, it's an everyday occurrence. Battery chickens, feed-lot cattle, sheep with fleeces dropping off after chemical treatments, furred animals grown in stockings to produce curly wool, are all common farming practices. If people are horrified by the idea of Bonsai kittens it is because Western society, myself included, likes domesticated cats, regardless of the cruelty they inflict on native prey.

All of this fades into insignificance when compared to the deliberate cruelty inflicted on human beings for gain. Think of the current right-wing resistance to increased penalties for bosses deliberately running unsafe workplaces, and the governments abetting them. Think of the assistance given to the motor lobby as they engage in profitable ways of increasing the road toll which kills many more than war, and the potential terrorism which they claim to be concerned about.

Ultimately, it isn't the cruelty we inflict on the animals which matters most. In the wild, animals die the most horrific deaths. What matters is that we are training people in inhumanity. We get endless dissertations proving that vicariously violent TV and film is not "harmful", simply because there is little proof anyone emulates these vicious fantasies directly. What we should be concerned about is to find our minds running in inhuman directions, the direction of the bonsai kittens. One of the points I want to make is that I believe that it is modern technology which perverts our minds, so that we can no longer exercise our imagination in the direction of possible realities, such as a better way of running society, and instead have our minds diverted to sidetracks, which have now become possible due to perverted technologies.

We are being told that these technologies are opening up unlimited possibilities for the imagination.. Give me Morris or Blake anytime for positive visions, or Dante for the nasties. Of course, in the old days Christians always had the good excuse that animals had no soul, and therefore felt no pain, or at least felt it differently to us "advanced" humans. Nowadays there is a whole academic "consciousness" industry which constantly surprises itself by discovering that animals can count, and do other things without which they obviously couldn't have got to where they are in the evolutionary scale. They obviously couldn't think of breeding humans in narrow bottles so that's one thing we have over them.

They could think as much as was necessary. A pride of lions can obviously outsmart a herd of beasts, otherwise they'd go hungry. Human beings are sadly deficient in physical capabilities; we can't outrun a tiger, or outsniff a dog, outswim a crocodile or shark or out climb a cat; if that makes you feel inferior - stiff shit. We have other capabilities which have allowed us to overrun the planet and cause more damage in a few thousand years than other previous catastrophes. These are all based on technologies of various sorts.

Earlier, nature-based civilisations had, at least, by and large learnt by experience to keep their requirements within the bounds of what nature could provide. When they didn't, they perished. Usually this was a slow process. One thing we have achieved – if that's the word – is the ability to destroy our planet instantly. Our much vaunted brains have not developed to a stage where we can control our hierarchies, to the point where we can curb their, by now, counterproductive ideas which somehow run to the breeding of kittens in bottles, but not to provide for human offsprings' needs.

Let's not despair, however. The earth will go on, even if humanity is no longer there to enjoy it. Perhaps the few remnants of our civilisation will be exemplified by a few kittens' skeletons preserved in bottles. If we really had the brains which make us superior to other creatures, this would never happen. However, don't laugh or cry. While there are still people motivated to sign petitions against growing kittens in bottles, there is still hope for us.

Cartoon?

DIATRIBE 110 - Making Fortunes Out Of Nothing - The Technology Of The "Market"

It must have been some prime joker who called our present financial chaos "economic rationalism". In the old days of capitalism the idea was for the capitalist to get hold of some artefact or resource made by human labour, to pay the creators only for the labour that went into the artefact, and then sell it for what the market could bear. The difference was called the profit and it could range from a few percent to a huge margin amounting to many times the original cost. Nevertheless, it was almost imperative that at the root of this transaction there had to be some resource or product which appreciated in value by being handled in a process over which the capitalist had control.

In recent years things have changed. Using all sorts of tricks, such as the notion of intellectual property, and dealing with commodities that have little or no intrinsic permanent value, such items of doubtful worth were predominantly the property of the rich. Lately the consumer society in rich countries has created a situation where an ever larger portion of the spending-power of even people on average pay is concentrated on gimmicks which are quite irrelevant to their lives in the long term.

Just as domestic spending is largely unrelated to people's needs, so capital spending has lost much of its rational meaning as investment, leading to a return, based on the goods produced as a result of the investment; most such "investment" is simply speculation, a sort of lottery which kids mostly clueless speculators into believing that the shares they have bought are a ticket to any number of free lunches.

What has technology got to do with this? A lot. Access to fast means of communications allow "investments" to be shifted around the globe in milliseconds. Instead of waiting for products to be made and sold to realise a profit, it is a lot simpler to sell shares in the company that is supposed to make these products. I say supposed to, because the share-owners hardly ever see the product, if indeed one exists. In recent years as often as not there was no product to speak of. I bet not more than a handful of our listeners could rattle off the products of ENRON or World.com - two of the USA's largest corporations until they collapsed last year - and neither would their so-called investors be able to do so.

So why did people – and I am now talking about workers and middle-class people – put their life savings into companies which were totally outside their understanding? The answer is that for a time this worked. As if by magic, the paper value of shares kept on rising, particularly immediately after they were floated. This, of course, was the precise point at which no-one could tell if these stocks had any value at all, particularly if no product had yet seen the light of day. Even when there was supposed to be a product, shareholders had absolutely no way of predicting whether it was of any value.

Remember, in the days of the gold rushes in Australia, investors were given details of mining claims which included forecasts of the richness of the ore-body, its size and accessibility. Even then, investors (they were real investors then) were often fooled by being handed samples from “salted” mines and told lies. In mining, “calls” on investors financed the progress of the mine’s development. At all times the company listed to make use of the invested money was supposed to be responsible to the shareholders. That’s the theory, anyway, and there are rules embedded in law.

Capitalism being what it is, there have always been scams. One of the earliest was the South Sea Bubble, in which Britain’s National Debt was privatised and 1 pound shares were sold for 1790 pounds when the bubble burst. Shares in the Poseidon Goldmine in W.A. a couple of decades ago reached a price of \$300 for a \$1 nominal face-value. These were outright frauds. There are plenty of frauds nowadays. But the significant difference is that the people accept that the normal mode of the system is fraud, and all they hope for is that they should be amongst the unprosecuted criminals who perpetrate the frauds, and that they should benefit from them

Let me explain what I mean. Fraud is what you and I mean when we gain wealth by deception without performing any labour to gain it. Ask anyone who buys shares in the expectation that they will appreciate in value how they think this value increase will come about, and it is not often that they will be able to think up a meaningful answer. I think the real investors of old were quite different beasts. They expected that the money you supplied to them would be spent on capital expenditure – buying materials and machinery, perhaps on developing new products, employing and training labour to work the processes of their businesses. Today’s investors buy shares today and eagerly look up the stock-exchange listings of these shares to-morrow morning. Ask yourself: if anyone could generate instant profit, why would they be so stupid as to want to share it with you? The only explanation for this nonsense is that to-day’s “investors” wish to be party to some-one’s fraud. The increases in share-value they expect is based on generating not real profits, but generating *expectations* of profits, in short, in generating the next bubble. The beauty of hi-tech gimmicks is that, as the term hi-tech implies, ordinary people are not supposed to understand the “magic” involved; nor are they expected to even ask how the latest gimmick will find a market. Speculative investment is not really investment at all – it is a lottery in which the “investor” is not party to the odds, the size of the prizes or, worst of all, whether, in fact, there are any prizes, and how much the organisers are keeping for themselves. An organiser of an honest lottery would be expected by law to divulge these details.

Why worry about these speculators who want to benefit from fraud? After all, these lotteries, straight or crooked, are a zero-sum game played by consenting adults who should take responsibility for their own actions. By zero-sum game is meant that the overall amount of monetary wealth in the total transaction does not change, and we can therefore stand on the sidelines and sneer (or cheer) as one lot of rich bastards rips off the other lot of rich bastards. If only! This may have been true many decades ago.

Bertolt Brecht wrote a poem many years ago which expressed these sentiments. History, he said, tells us of the way in which the rich and powerful are constantly fighting each other; like the compartments of an undershot waterwheel, they alternatively go to the top or the bottom. The water driving the wheel, however, meaning the workers, always labours underneath.

The trick to force the workers to participate in the lottery of “investment” has numerous facets. The most brutal one in recent years has been the introduction of compulsory superannuation. Super is normally a type of forced savings, which obliges the boss to put aside part of your wages, to be paid out to you when you retire. In Australia it was always clear that the money abstracted from workers would be put at the disposal of capitalists. Indeed, right from the beginning, capitalists were licking their collective lips, with super funds providing the biggest single source of investment. The current notion that the government “doesn’t know” how to safeguard the workers’ super funds is ridiculous – the legislation was framed precisely so as to make the stealing of workers’ funds possible.

What is more difficult to explain is that, where unions run super funds, they insist on providing a lump sum option, which makes workers vulnerable to exploitation by shysters. The whole notion of seeing super as a form of insurance is a scam, and certain national governments have seen it as such. After all, everybody gets old. Providing for a decent life for people beyond working age should be an automatic function of any halfway decent welfare system. In Australia in the immediate post-war period, there was a separate part of income tax called social services contribution, which covered pensions – not of the worker at retirement, but of those retiring currently. The notion that at any time you need to have enough in kitty to cover the sum total of potential payouts is obviously intended to provide huge capital sums for capitalist speculation. The social services contribution has long ago been ditched, as workers’ savings are not only put at the bosses’ disposal but at the

system's mercy. In his poem Brecht had a line which said "We don't need different bosses, we need none". Bear it in mind.

DIATRIBE 111 - Who Owns Our Water?

The present stage of rampant capitalism, bereft as it is of creative impulses, subsists on theft and robbery. And while rabbiting on endlessly about the supposed benefits of competition, the last thing its beneficiaries want to see is the sort of competition that would bring benefits to consumers. In the final analysis, the competition they want is competition between workers, and between the local economies which sustain these workers. Of course, the companies which constitute the vast percentage of the capitalist system may be geared to present themselves as competitors, but invariably on closer inspection turn out to be cartels, in other words monsters which have divided up a market between themselves. In Australia this has gone further than most other countries, having been aided by compliant governments, Federal and State, who have competed against each other to provide the most favourable conditions for large and small companies to rook the consumers, in other words you and me.

This is a far cry from the original versions of capitalism, in which the theoretical conditions of the so-called market economy still prevailed to a large extent. However, it is hundreds of years since these conditions were still possible. I say possible, because the notion of a competitive capitalism is one of the many contradictions which define capitalism. Capitalism is based on the private ownership of the means of production, in short, the machinery and raw materials which make up the productive apparatus. If these ingredients are easily available, anyone would have access to them and they could therefore not be privately owned. In a hunter-gatherer society no-one can be a capitalist; even under feudalism under a subsistence economy the means of production cannot be monopolised. Capitalism is not only a child of expensive technologies beyond the reach of the unorganised community, but its continued existence depends on the existence of classes of owners and workers.

In a consumer society another factor kicks in. As Karl Marx pointed out, capitalism derives its power from the differential between the cost of labour-power and the price charged for the commodity made by this labour. This made a lot of sense when the end-recipients of the commodity were largely the members of the ruling class, who got a double benefit from the system inasmuch as the competition between workers minimised the cost of the commodities to the ruling class in relation to the living-standard of the producers.

The present situation is different, at least in industrialised countries. Once a substantial proportion of the commodities goes to the producers, from their point of view their returns are minimised. But what if the ruling class could sell goods they don't have to manufacture, containing raw materials they don't have to buy, goods which are literally essential to the existence of everybody? Clearly, such a bonanza would be highly desirable. After all, in the good old days of feudalism, lords could make serfs work for them for nothing, and they could steal what was the serf's property with impunity, as happened during the enclosures in Britain, which turned thousands of peasants off their traditional lands and handed their properties to the usurpers (vide the clearing of the highlands).

This sort of theft must have always been a source of envy to the capitalist class. Luckily for them, they are now able to dispossess not just individuals and villages, but the poor of entire nations, by conspiring with the powerbrokers of these nations to sell off not just the wealth of these nations, but their economic future. The targets, nowadays, are not just infrastructure items, such as public transport and, where it applies, public housing and hospitals, parks and land. Capitalism now has the means of denying entire populations food, water and health. We are not here talking about inflicting misery by neglect; that is merely standard practice, part and parcel of the system itself. We are looking at a form of blackmail whereby the necessities of life itself are withdrawn, things which in the strict sense of the word are not even commodities. The most important of these is water.

Once upon a time clean water was a given in many parts of the world. Where it didn't run past your abode in the form of a creek you could generally dig a well, or build a dam, or provide a tank. Water determined where houses and cities were built; it provided a transport artery.

The concept of withholding drinking water of course was never far from the minds of the military; the poisoning of wells and even diversion of waterways was a favourite strategy of people running sieges, and others who were inhuman enough to use death from dehydration or waterborne disease as a means of coercing an enemy or winning a campaign. It was, however, left to capitalism to use the water-supply as a means of exploitation.

To-day, much of the world's water is in private hands. Centralised technologies of water distribution enable the withholding of this vital resource, and turn water into a commodity to buy and sell. The ownership of water allows enormous rates of exploitation, because it is always marketed under monopoly conditions, and the selling price stands in no relationship to the cost of providing it. Indeed, not only was the infrastructure of water distribution almost invariably provided by the state, but the maintenance of the system is generally allowed to deteriorate under privatisation.

Better still for the exploiters, clean water is increasingly scarce. Water, once mainly used for drinking and washing, is nowadays squandered in vast quantities in industrial processes, many of which pollute it to the extent where it cannot be easily restored to a drinkable state. Most people have no idea of the amount of water used in the production of silicon chips for electronic devices like computers. It is only recently that we have become aware of the massive pollution caused by mining in places like New Guinea, where an entire river system has been irretrievably destroyed, or the Aral Sea where most life has been killed off, due to industrial pollution.

Why has this problem become so acute? There are many reasons. For instance, Australia's river systems, particularly the Murray-Darling, are being salinated largely by growing too many of totally unsuitable crops like rice and cotton, which we can sell cheaper because the cost of water is hardly considered. Splitting the authority over the water supply between states doesn't help. Privatisation and corporatisation, as elsewhere, has played a part in Australia, where previously regional systems have been handed over to fragmented local authorities which have allowed grazing rights in previously pristine catchment areas and left it to downstream users to cope with the resulting pollution.

A frequently quoted example is that of Cochabamba in Bolivia where a consortium of overseas companies took control over the waterworks in 1999, which included groundwater such as domestic wells. They instantly raised the price by 150%. When people couldn't pay, their water supply was shut down. When they protested in 2000, police and army were called in and 2 protesters were killed. The three huge corporations which run this worldwide racket have annual profits which grow at a rate of 10% per year when everything else is stagnant. We are aiding this process by buying bottled water in spite of once having the world's cleanest water mains.

Behind it all are the world's controllers, the IMF and World Bank, who are the world's enforcers of that most destructive of fundamentalist religions, so-called economic rationalism. Before the World Bank will give a country a loan, they lay down that the country must privatise its public assets – a certain road to impoverishment and disease. Waterborne epidemics are part of the deal, and privatisation is designed to replace public water supplies with privatised water and public health with private health. It is happening everywhere and it happens here. Stand by for the privatisation of air.

DIATRIBE 112 - The Technology Of Impermanence – The Curse Of Insecurity

Recently we were told that honey was out for young babies because of the "danger of botulism". Having been brought up with the knowledge that honey was pretty impervious to contamination of any sort, the news about botulism came as yet another example of 21st century bullshit which you could brush aside and get on with your life. After all; at a time when even pickles and preserves carry a warning to "refrigerate after opening", honey is one of the few foods you always keep on the shelf regardless of season and temperature. Commonsense and experience will tell you that honey in a beehive may be full of bees' body parts, but that this in no way affects its keeping qualities. Indeed down the ages honey has been used to dress wounds and perform other antiseptic functions.

Why can such an obvious porky gain currency in the population? Sadly, the answer is obvious. With all the school learning, few people trust their own judgement. And while aboriginal Australians may have harboured strange beliefs, by white standards anyway, the notion that honey goes off when left in the environment would not have been amongst them, nor would they have been wrong in any of their judgements relating to their survival. What they couldn't cope with was the arsenic fed to them in the white man's flour or the excess of sugar provided in the white man's station food.

How could the same white man, in the n-th generation of white settlement, know anything about food, other than what they read in the ads? Kids grow up believing that milk (if they ever drink it) comes from a factory and so do potatoes, and that all this is boring when compared to the virtual reality of the latest computer game. A few years ago, on talkback, as a station technician and using talk-back equipment which I had designed and built, I had a call from a young person who explained to me in words of one syllable, how the problem in our society was the predominance of old people who couldn't handle the technology which is nowadays required for our survival.

The tragedy is that he was probably right, at least in part. He is convinced that survival skills hinge on being able to operate Bill Gates' crappy software, but probably doesn't include knowing about honey. And older people who know about honey and a great deal of other ways of feeding yourself have also been persuaded that this knowledge is no longer relevant or valid.

Let me once again go over the facts of technological development in the last couple of centuries. If you ask the average citizen of this country (providing such a person exists) as to what he/she considers the most significant technological development of these two centuries I bet computers would rank highly. Yet a moment's thought will tell you that when it comes to stuffing up our environment, as well as delivering rare benefits, relatively

simple technologies made the greatest impact. And this is true over the lifetime of this mythical average citizen, no matter where they live.

Here are the massive long-term threats, starting with global warming, lack of water, sanitation and overuse of energy. All of these are man-made problems. You will note that they originate in our civilisation, and not in God or the Devil. All of them should be and can be tackled at their source rather than dealing with their effects. An example is the introduction of cooling systems into buildings, which, in turn, use more energy causing more heating and so on. Instead, energy-efficient buildings may not need artificial cooling at all. The answer in these cases is the reverse of the Nike slogan: "Just do it!" It should be "Just don't do it". Naturally this is not favoured by the exponents of the consumer society.

Instead, we get all sorts of hare-brained high-tech projections based on far-fetched assumptions. For instance, the current drought has once again brought forward the notion of turning Australia's rivers inland. We have examples of rivers which finish up inland; they create salt-lakes. If taken as models, they would destroy much of what is left of Australia's arable land; the problem, of course, lies in the insistence on growing rice and cotton, some of the world's thirstiest crops in the world's driest continent. Indeed, what we are selling is not just produce, but vast quantities of water we have not got to spare.

These unsustainable practices are not just driven by ignorance and idiocy, they are driven by greed. The unpredictability of Australia's arable lands is indeed quite predictable. Indigenous Australians have lived with these conditions from time immemorial. For example, to the north of us there is an area which is cyclone prone, typical of these latitudes. While every time the fearful storms and floods occur it proves disastrous for settlers, local indigenous people take it in their stride. Recently there was a massive such storm in the Solomons, which cut off communications, such as they were. Europeans thought that human life had been extinguished, after flying over the islands and not finding desperate help messages set out in the sands. Indeed, not a single person had been killed. The inhabitants had all sheltered in local geographic features known to them from way back, just as Australian aborigines knew how to cope with bush-fires and even turned them to their advantage.

Ours is a culture of control freaks, however. The Judaeo-Christian notion of domination of the world by powerful humans and an omnipotent god leads to the attempts to defy the laws of nature. When you take stock, most of our really important problems are either caused or gravely affected by the impact of human civilisation on our environment. I have already mentioned the idiotic notion on turning our rivers back inland. This is not just a dream; much of it was already done when the Snowy was tunnelled back into the Murray, causing massive salinisation; the full effect was not realised until 50 years later, and apart from restoring some of the river flow, it seems that all we can do is to undo some of the exercise that was touted as the biggest scheme in Australian engineering. The Aswan dam and some of the recent water diversions are other instances where awful consequences were either not considered or the objections were over-ridden.

We are not the first, either. The world is littered with the remnants of civilisations like that of Easter Island and several North African and South American civilisations. All of them seem to be pretty high on the technology scales. This allowed them to get into their vegetation on an unsustainable rate. In many cases, the tools were no more than stone axes. And if you can destroy your fragile local ecology with a stone axe, think of what you can do with a chainsaw! Which brings me back to my original argument – that it wasn't the computer which made the greatest impact on our society, but relatively simple machinery, like the chainsaw and the bull-dozer.

But the effect of these technologies on our environment is not the only problem. Having thrown doubt on the old certainties, our civilisation has come up with new sets of parameters which are not one whit more convincing in many areas. For instance, economics is nowadays touted as an exact science. But not only are the precepts of this new so-called science changed several times a year, none of these precepts made much sense in the first place. Going back to the destructive aspects of certain civilisations, it is clear that sustainability must be the overriding consideration in introducing new techniques, if civilisations are to survive.

Instead, sustainability seems to be the last concern of our decision-makers. Indeed, our much vaunted sound economy is constructed on the accountancy notion that the most important aspects, such as water, soil, trees and fauna are "externalities", which should not be considered, when evaluating the ingredients of producing commodities. Simply put, they encourage the destruction of the nation's capital at the expense of short-term gain. When you can elevate such utter nonsense to the level of a scientific truth, it is not surprising that people get confused and bewildered.

It seems that after two centuries of the profit driven scientific society, we now have fewer certainties than in the Dark Ages of superstition. This is exactly what those in power are aiming for. Confusion, for them, is not a problem but an achievement.

DIATRIBE 113 - Space-Shuttle Columbia – A Predictable Disaster

As Nobel-prize winning Physicist Richard Feynman said, when you play Russian roulette and the first two shots you fire are blanks, you would be foolish to assume you can go on spinning the chamber endlessly and clicking the trigger, on the assumption that you can go on doing it forever just because it worked the first two times. In one of my previous talks on the International Space Station I pointed out that with one in 5 satellite launches failing, the assumption that the assembly of the ISS, which involved more than 100 trips, could be carried out without problems was far-fetched. And I turned out to be right. Hardly a big achievement when you look at the odds.

Yet this was precisely what was planned for Columbia. And not for the first time; if your memory goes back that far, you will remember that Columbia was the first of the four shuttles which made up the full complement. Shuttle trips were always dicey. The shuttle is a complicated beast. Compared to the problem of re-entering the earth's atmosphere, every other difficulty fades into insignificance.

In orbit, the shuttle has about as much energy as several express trains at full speed. Most of this energy has to be dissipated into the air when the shuttle is slowed down to re-entry speed. Only the last tiny bit of energy can be given up to the parachutes that are seen unfurling during the actual landing. To slow the shuttle down more gently would require enormous amounts of fuel in rockets, almost as much as it takes to get into orbit. Apart from this, there are literally thousands of possibly fatal problems in manned space-flight.

When the shuttle made its inaugural flight, 14th April 1981, experienced astronaut John Young stepped out on landing and minutely inspected the underside of the beast. It was obvious that he had not expected to survive. Sure enough, some of the ceramic tiles which are supposed to absorb the energy of slowing the shuttle had come off, but against all expectations this had not led to the disintegration of the craft. So, the missing tiles were replaced, and the program went on. And with dozens of shuttle flights, this "solution" was repeated. To this day they have not found a way of either cementing the tiles to the fuselage so that they don't ever come off, or some way of cementing them back on in flight.

The first shuttle disaster, 'Challenger', had quite a different origin. The shuttle's booster is assembled out of units which are joined together and made gas-tight by the use of large o-rings, made from a class of neoprene which loses all its elasticity at low temperatures. The launch controllers knew this, and were, indeed, warned, on the day of the disaster, not to take off, because of low air temperature. With the o-rings stiff as a board, an oxygen leak developed and the craft literally burned up.

The following investigation concentrated on the cause of this particular failure and how to "fix it". One of the people called in to give his opinion was Richard Feynman, who is probably known to many of you for his humorous books directed against pomposity, bureaucracy and conservative thinking. Feynman, who unfortunately died not so long ago of cancer, went straight to the heart of the matter. "The problem", he said "is not the o-rings or any other single cause. The problem is in the culture.

The culture he referred to was one of patching up problems before their root cause was understood and tackled, and then regarding the problems as solved. In the case of Columbia, the catastrophe was a disaster waiting to happen. On many previous flights tiles had come off or been damaged by falling debris. It was left to chance to discover when these previous problems would lead to a catastrophic failure; indeed, once the patch-up job was accepted as successful, work on a proper solution was all but abandoned. The world doesn't need a space-shuttle, or indeed manned space flight. It is hard to tell what gives the current impetus to the continued playing with manned space flight, now that the arms race is winding down in that area, although the revival of the star wars nonsense may well pump further cash into what should have been dead and buried long ago. Now why did I waste time on the Columbia debacle? Mainly because it is so typical of what happens with so-called hi-tech.

The original moon-shots had a computer to be sure. If it had failed, there were probably ways of bringing the crew back to earth. Indeed, Apollo 13 had a catastrophic failure which required a maximum of human ingenuity to result in a safe return for the crew. Not only does the horrendous difficulty of high-speed entry create any number of situations leading to catastrophic failure such as tiles disintegrating, but a large number of complex systems have to interact flawlessly to achieve a safe landing. The angle of approach of the craft to the atmosphere has to be spot on; while the shuttle looks like a plane, its wings do nothing to stabilise the attitude of the craft until they come into contact with the atmosphere. If, by then, their attitude is wrong, it is too late. As, in these cases, it is too late for human intervention, and the only time people are needed is for the final landing manoeuvres, the presence of humans on-board at this time is hardly essential.

In short, the story of the shuttle exhibits all the hallmarks of capitalism. Run by incompetents, it has tackled all the problems which didn't need to be tackled. Edmund Hillary said that he tackled Everest because "it was there". Our science often creates problems just so they can grandstand in tackling them.

DIATRIBE 114 - 1-2-3 Just Testing

Every day or two the claimed reasons for the invasion of Iraq change. There is, of course, the “fundamental” difference claimed between this one and the 1991 effort – the claimed invasion of Kuwait. The 1991 war was deliberately provoked at the behest of the US who told the Kuwaitis to encroach on the Iraqi oil supplies and then told the Iraqis that the US would not interfere if Iraq occupied the Kuwaiti Oil Fields in retaliation. Iraq was consequently totally unprepared for the war.

This time round, Bush has rattled sabres for so long (ever since that first debacle) that the Iraqi leaders had time to prepare. Indeed, it was hard to tell what the US expected from a strategy of trying to involve the sophisticated European governments in an endless propaganda war with an outcome which held no positive outcomes for them. So puzzling has the behaviour of the US been that most politically cluey people came to the conclusion that the US administration had lost its marbles.

Mind you, it is probably realistic to assume that the US rulers have lost their marbles. Everything has gone wrong with US capitalism in recent years, ever since the competition with the old Soviet Union came to an end. Indeed, the “analysts” in the US cannot understand why the predicted massive depression has not yet happened. They have, however, a well-founded feeling that the longer the depression is delayed, the worse it will be when it comes.

All these aspects are driving the US to war. Besides, the war doesn't really cost anything much at the moment. All but a few munitions and systems are already in stock and the accounting which figures so largely in the reckoning of the administration is as fictitious as other icons of capitalism, if not more so. The “value” of stores of armaments are whatever you like to claim they are. When a helicopter worth many millions can be shot down by a farmer with a WW II rifle, this truth becomes obvious. Even the bullshit phrases thought up by advertising agencies like Hill and Knowlton, although initially generated without any reference to reality, sometimes turn round and bite the generals and politicians who use them. For instance, it is clear that the US war-mongers decided after the first Gulf War that the future for their campaigns lay in demonising individuals. That way, the war could be sold as being cheap, quick and clean. Unfortunately for them, it is a lot easier for individuals to hide than to fight wars. Consequently, the US has had to pretend that Osama bin Laden either no longer exists or that eliminating him is no longer important when they failed to find him and Afghanistan was returned to its destroyed status quo. Nevertheless, the generals not being very brainy, they used the same concepts in this present war. The war, they said, is against Saddam Hussein, and once he is eliminated you will be able to breathe a sigh of relief and go back to your customary life of luxury.

The only problem with this was that after 12 years of sanctions which had killed upwards of half a million children, few Iraqis saw theirs as a life of luxury, nor did they see Saddam as the cause of all their miseries. So, by and large, the pretended arguments for the war didn't wash. I'll go further and claim that there were people in high places in the US administration who were quite aware that these sorts of arguments were phoney. Simply, they wanted means of deceiving their own population into believing that this was going to be a short, sharp war with a triumphal outcome. The way to persuade people of this, given that many had been through the Vietnam war and knew the sort of battles to expect, was to tell them this was going to be a quite different war, a technological war which would be fought by-passing the civilian population. They even thought up a new name – Shock and Awe. They hinted the war would last less than a week. The enemy, who hated their leader, would simply melt away with their hands up.

Indeed, the testing of new technology can now be seen as the one real purpose of the invasion. The US is desperately short of actual products to sell. Over the years, the war the US has run on its own workers has resulted in the flight of industries from the US to all over the world. To-day, much of the US lives on trading of intellectual property, on various forms of commerce in other countries' produce. The once hugely profitable agricultural production is nowadays sustained by enormous subsidies to make the industry competitive.

One of the purposes of the war is to maintain the unequal trade in the many items in which the US is no longer competitive. Typically, the Australian wheat trade is one such. The US has made it clear that it wants to divest Australian producers of much of the nearly one million tons of wheat we currently sell to Iraq annually. But the US is also losing out on the arms trade, with other suppliers muscling in on what by now have become traditional US markets in weaponry, ammunition, warships and electronics, all sold at huge prices on the assumption that the US has some magic ability to produce weapons of mass destruction, as they are now called. For decades on the strength of publicity lies that these are “battle-tested” gadgets, US multinationals have reaped huge financial benefits.

Things, however, haven't gone too well lately. Think of the blow to the prestige of the US merchants of death when few, if any of the Patriot missiles in the first Gulf war went anywhere near their targets; although theoretically not linked to the military, the Columbia shuttle disaster would have been seen by arms buyers around the globe as proof of the fallibility of the US technical machine; already most of the world's communication satellites are not launched by US companies. Russia, China as well as Britain and European countries are suppliers of very sophisticated hardware.

It was essential that there should be an actual situation which demonstrated to the world at large that US technology was still invincible, at least in some areas. The most obvious was electronic targeting. You and I can buy equipment which locates our position within 10 metres anywhere on the globe. It remained to demonstrate

that this gear would work under battle conditions. Just why this was so important is not hard to discover. Just think what you could do by personally threatening your political enemies by just programming missiles to hit an individual building. Indeed, that is precisely what the US tried to do at the beginning of this invasion, only they failed. Other than that, the concept of war at a distance appealed to the courageous characters who are in the military. Unfortunately, in Gulf War One the Patriot missiles never hit any thing – what was shown on the telly were publicity shots used to sell US missiles. Evidently, the electronics in the Patriot Mk.II are set to a more sensitive point and this time round they did hit something; unfortunately it happened to be a British jet. Ooops!

Another failed plan was the preparation of the propaganda machine. All the journos from the coalition of the willing and the brainwashed were stuck in a Qatar hotel, and fed predigested pictures of the success of pinpoint accuracy in the programmed weapons. When I was a boy my teachers insisted that the speed of sound was around 3km per second. Lo and behold, the flashes on the horizon which appeared to be about 3-5km away were instantly followed by the sound of the explosion.

Ultimately it became too much for Australian Journos. Peter Thompson from ABC TV exploded on air, saying that if all he was going to get from the command centre was bullshit, he may as well go home. There was however, an exception to the media circus. Al Jazeera, the Arab News channel, got out news and commentary which was evidently too factual. The US bombed the aerial and put it off air, but it was back a few hours later. Al Jazeera is still on air, and now has broadcasts in English. They are likely to get channels in Australia.

As I write this, the forces of Democracy have to explain why bombs and missiles are hitting and killing civilians in large numbers, not only in Iraq but in surrounding areas. They have accused the Russians of selling electronic equipment which interferes with the satellite global positioning signals, but that would only prove that on the designers' own admission these signals can be interfered with. The US military has lashed out against other Arab countries for giving support to the Iraqis, which of course they are perfectly entitled to do. In effect, the US complains that Iraqi strategy has not followed US planning; in short they are not "fighting fair". So far, the Iraq adventure is hardly a good sales pitch for US style automated blitzkrieg. It is, however, a confirmation of the predominance of the human spirit, not of US personnel, but of Iraqi "insurgents".

Not only is the US machine following the same idiotic strategies that lost them the pointless Vietnam War, but they are ignoring fundamental principles of warfare in doing so. It is not for us to gloat over this; thousands of human lives are being sacrificed to prove an advertising point. Also, given the weapons of mass destruction in the hands of the US military, whatever the developments, the future looks bleak for us and our children.

DIATRIBE 115 - The "Efficiencies" Of Modern Technology

In a currently widely disseminated ad, the viewer is confronted with the catastrophe of wanting some consumer item at 2.30 in the morning. About the only item that I can think of that fits into this class would be a condom; but somehow I don't think that's what the ad is about. It is about shopping on the internet, I think.

Besides, 24 hour shopping is already a reality, not only in the so-called convenience stores, but in many of our suburban supermarkets. Indeed, it has been around for decades in the US. In the old days so-called night life was something that was done after hours; you could fantasise why it was done after hours, perhaps because without artificial light there was little else you could do after hours, or because people were too shy to perform their sex-life in daylight. There is a whole field of study there for some academic.

More seriously speaking, however, modern and not so modern industry did give rise to trades which required 24hour operation. This was particularly true with the introduction of steam, because shutting down and restarting boilers is a costly exercise. Also, with expensive machinery, there is clearly an economy in operating it 24 hours a day. Other trades had to work through the night precisely because that was the time when everything else shut down; this applied to a lot of maintenance.

Given the cost of working through the night, one would have thought that such work would be reduced to a minimum and would be eliminated wherever possible. Apart from this, with the elimination of much manual labour, and increasing automation, the number of workers required to mind machinery at night also would tend to be reduced. In any case, financial constraints were introduced at least in Australia, to make "after-hours" employment quite costly, particularly when worked in addition to normal time. Holidays were also observed reasonably strictly because of the "double time" myth. In fact, there never was such a thing as double time on holidays – all one does is to collect two days pay on days where you would be entitled to get paid even if you don't go to work: in other words, you miss out on a day's pay at overtime rates.

I experienced this rip-off already 40 years ago; because neither workers nor union officials could understand how the scam worked. They were overawed by the size of the resulting pay-packet.

Nowadays, this sort of deception is no longer necessary, because it is incorporated in the work-place culture. Having persuaded the workers, even the lowliest, that they are some sort of executive and that they have to prove this by working unpaid overtime, many workers risk their health by working ridiculous hours

The Fallacy Of Primary-School Mathematics

If it takes ten workers a month to complete a task, how long will the same task take when there are 20 workers? How long will 10 workers take if they work 50 hours a week instead of the prescribed 40 hours?

When you first learn about ratios and proportions these questions come with simple answers. A worker is a worker, so two of them will do twice as much as one, and so on. Real life, however, isn't like that. If it takes ten burly men to lift a girder, five men won't be able to do that job at all. If the men are not available, a machine will have to be brought in. Often that will take longer and cost more. And who can make the decision as to how the job should be done? Usually it is someone at the level of a foreman or forewoman or leading hand. With an experienced team, no-one in authority is required – workers know what to do. The sum total of these tasks is called management and is a skill not vastly different from the other skills employed to get a job done.

However, in our hierarchical society there is a mystical aura which surrounds administration. It has even penetrated into the political left, where the nature of decision-making is often considered more important by far than the suitability of the decisions which are taken. And there comes one of the contradictions of our society. Almost invariably creative people are turned off by sitting at a desk and making administrative decisions. By definition, those who rise in bureaucratic hierarchies are the time-servers and autocrats who are least fitted to be "in charge".

It is these incompetents who make the rules. Of course, this means that amongst other things they would automatically assume that imposing longer hours would be seen as increasing profitability. Also, it is the only way they themselves can demonstrate loyalty to the firm or organisation; as they have no measurable output, at least they can increase their input. When I was a boy in my first job, my boss made a point of staying back every night, if only for a miserable 10 minutes, just sitting in his office.

In a later job, where the boss made a point of employing only young people, every Tuesday was automatically dedicated to 4 hours unpaid overtime. This was a technical job where a single bright idea could save weeks of slog; and those ideas are not likely to come up after a long day's attendance. As a mature-age engineer, I didn't join in this nonsense when I started work there. After a while, a young draftsman, recently married, asked me how he could get out of the system of unpaid overtime, and when I told him to just tell the boss he didn't want to participate, the system fell to pieces. As far as I can tell, nothing serious happened.

The illusion that these impositions increase efficiency or productivity is never tested, although this would be dead easy. Unfortunately, workers too, in many cases, see the lengthening of hours only in terms of extra exploitation, although, particularly in the case of office workers, the workers themselves are fully aware that their extra input doesn't result in useful output.

In many cases, the imposition of irregular hours is simply mismanagement. The availability of mobile phones enables employers to impose irregular hours although this isn't necessary; even more so where the resulting overtime is not paid for. All this is accepted as natural, and even in lowly jobs the entire week is considered working time. Even that is not enough. Recently, a TV doco showed workers in India being instructed on how to deceive telephone callers into believing they are being answered by Yanks or Aussies with the right accents and local knowledge.

Now, you will find it hard to persuade me that the overall cost of these training programs, plus the instructions required to enable calls to be answered, is cheaper than handling the task locally. But then, no-one will try to persuade us, because the assumption should be (and often stands) that Australian workers, even in call centres, are woefully inefficient. And that it would take massive subsidies to keep the jobs in Australia.

There are people in Australia who should know better. You don't have to be an Einstein to work it out for yourself. On the contrary, the people who impose outsourcing are the highly educated ones. As a result, the leaders of our unions don't question the wisdom of the bosses brought down by their lackeys. ACTU specialists travel the globe to join in so-called schools to receive this wisdom; workers on the shop-floor are rarely given a chance to express opposition to patently ridiculous claims.

A week ago we celebrated May Day. 100 years ago workers in Australia understood that the length of the working day was an important part of the living environment, regardless of how much you got paid for it. To-day we work longer hours and don't even get paid for it. It is even treated as a privilege which puts "ordinary" workers on a par with staff. Privilege? You'd have to be joking.

DIATRIBE 116 - Illusions Of Speed

Every year many hundreds of mainly young Australians are maimed and killed on our roads. The cost of these tragedies, added to the cost of ever more expensive roads, the cost of hospitals and the human costs in terms of misery, add up to perhaps the most serious impact on our community, particularly the most economically important part of it.

As if this weren't bad enough, it comes with an illusion that this is a price we have to pay for the speed and convenience of modern transport. This illusion is impacting on residents in Melbourne's eastern suburbs where I live. For 20 years Melbourne's eastern suburbs have suffered from a transport crisis because the city extends to the east three times as far as to the West and twice as far as it does to the South; but what is happening to us is just a rerun of what has happened all round the world, as huge tracts of land and vast sums of the people's wealth are buried under the concrete of burgeoning freeways, not to mention massive car parks, enormous intersections, and acres of roadside car-yards.

Nor is this problem independent of the car; Australian cities were created by and around the car. About one third of our incomes are currently spent on cars. Fringe localities are no longer desirable garden suburbs, but often function as near slums, refuges for the transport poor, now that train-lines and other forms of public transport have been curtailed or closed, creating a situation where without cars people become isolated.

In Melbourne's eastern suburbs these problems have, as usual, been channelled into a demand for more freeways. This demand is based on a number of assumptions, all of them highly questionable. Indeed, since nowhere in the world have motor vehicles and freeways succeeded in solving the transport problem, one would have to analyse the mechanism which allows the capitalist system to persuade otherwise sensible people to be talked into this strange belief in the motor-car.

There is nothing special, unfortunately, in people's love-affair with property. What is special, in this case, is the size of the "investment". A car represents the accumulated disposable income derived from months if not years of labour. But even this is an illusion. Four cars out of every five on the road are not yet paid for, but represent a millstone round the "owners" neck. Even worse, while the average millstone lasts many years, and during that time requires little maintenance, cars are notoriously prone to rust, to attracting registration fees, and, nowadays, to planned obsolescence. They also subject their owners to endless time-wasting obstruction, frustration in looking for parking spots, costs of repairs, costs of parking when you do find a spot, fines for speeding...

Speeding – now there is a pet hate subject of drivers writing letters to motoring columns and motoring magazines. In its petrol-headed stupidity, the government has decreed a speed-limit with a 3km/h margin. Now the error curve of car speedos (the curve plotting the indicated speed against the true speed) for production cars resembles a snake in distress. Speedo readings are also affected by tyre and road conditions, and by how good the speedo was in the first place when it shows 50km/h. To prescribe speeds to a margin of 6% is ridiculous.

However, the main point is that the 50km/h limit applies to city areas where you frequently have to stop. Each of these stops pulls down your average speed considerably. Average speed means distance covered divided by the time it takes to cover it. In other words, if you do 10 km along a freeway it will take 6 minutes; but if it takes 20 minutes to get the extra 5km to the freeway and another 20 to get 5km to your destination, the total trip takes 46 minutes for 20 km, or a miserable 25 km/h. Things get even more instructive when you realise that *average* road speeds to-day are much the same as they were 100 years ago, taking traffic jams into consideration; if, however, you take into account the time you spend working to earn the money to buy your car, your average speed for city driving slows down to walking pace.

No wonder, then, that we are constantly confronted by stories of our European forebears who somehow travelled all over the continent in horse drawn coaches within one lifetime, and *enjoyed* it, because the journey, no matter how arduous, itself was seen to be important.

So, how could we ever be brainwashed into believing that owning and using a car was cheap, fast and efficient? The answer is that in some sense this illusion is true. When you already own a car, car travel is efficient because your means of transport stands outside your front door, even if it might take you 5 minutes to find a break in the traffic which will allow you to get under way; it is fast when public transport only arrives every hour. In short, it reminds you of one of my farming friends who disposed of his chicken manure by feeding it to his pigs. "Will they eat it?" I asked him, innocently. "They will if they get nothing else" he said. What he didn't claim was that, in time, pigs could be brainwashed into actually liking to eat chook-shit; that sort of idiocy is reserved for the victims of present-day society.

So, how is this persuasion done? Firstly, you shut down most of public transport. Mind you, this is not easy. But as public transport was mainly publicly owned, it has not been too difficult for motoring interests to buy most of it up and close it down; which is certainly what happened, not only in far away Chicago, but also in Sydney and Melbourne. Whenever new public transport routes are established, there is great feigned surprise that the use exceeds expectations, as it did in Sydney with the Eastern Suburbs Railway and the recently opened airport extension. Much of the need, so-called, of Melbourne's Eastern Freeway extension was served by the Warburton rail-line, which was closed some 30 years ago. The people who closed it were well aware of its potential, otherwise they wouldn't have pulled up the rails within days of stopping the train.

So, instead of putting forward a public transport plan for Australia, we have governments proposing piece-meal schemes for political purposes. The latest madcap scheme is to upgrade the Ballarat and Bendigo lines in Victoria. It is true that trains on these lines travel relatively slowly, but most of the frustration for users of these lines comes from the infrequent service, which could be upgraded overnight. However, this would require human staff, while upgrading the lines for higher speeds only requires one-off payments to private contractors. The

upgrading of the lines for extra speed will save a very few minutes once you are in the moving train; it will save nothing while you are waiting for an hour for the train to arrive.

For the \$1½ billion of the Scoresby Freeway we could upgrade almost the entire Victoria – NSW rail system. Instead, we are fragmenting entire suburbs because the only way to preserve them is to put the existing rail underground as well as building the freeway. What stops us from having a decent transport system is not the absence of magnetic levitation technology, but our bizarre economic madness.

DIATRIBE 117 - Bad News – Good News - Star Wars Revisited

Hollywood from its earliest days thrived on the stereotypical mad scientist. It isn't really necessary to be mad, but if your field is nuclear weapons madness is a distinct advantage. Also, or so I am assured by my many Hungarian friends, it helps if you are a Hungarian scientist.

All of these attributes certainly came together in Edward Teller, the "Father of the Hydrogen Bomb". An atom bomb, which relies on nuclear fission – the splitting of atomic nuclei – to develop explosive energy, is essentially very inefficient. At the most, it turns 1% of the available energy into destructive power. And even if it does this by smashing together several masses of radioactive elements, which is relatively simple, the total process of making such bombs is complex. It requires a grasp of complicated maths, because the actual explosion happens in around one millionth of a second, and the casing of the bomb has to withstand the force of the explosion for this time to maintain the chain reaction. A hydrogen bomb is an atomic bomb core with hydrogen wrapped around it. When the core is exploded, it develops millions of Celsius degrees which in turn heat the hydrogen to a temperature where its nuclei fuse to form helium, a reaction which liberates vastly more energy than the fission of Uranium or Plutonium. Indeed, either of these monstrosities can deliver, depending on its construction, virtually unlimited amounts of destruction. And while the explosive content of such weapons weighs only a few kilograms, the overall weight is many tons.

You can imagine that people who devote themselves to developing such destructive processes have to switch off their humanity. The megatons of explosive capacity translate into megadeaths when such weapons are exploded over populated areas, and when it is considered that the microsecond of the explosion translates into millennia of suffering due to fall-out, it is certainly a load of guilt no sane person could bear. That's where mad scientists come in handy

It is this background that Teller comes from. It allows him to seriously believe – seeing that he used to work with unlimited resources – that there are technological fixes, no matter how horrendous, for every problem, and that all of them are achievable. That is why, years ago, he proposed a so-called defence system, later dubbed Star-wars because of its sci-fi concepts, where missiles would be detected as soon as launched, become targets and be shot down. The US military worked on this concept for a while under Reagan, I think. They gave it away when scientists who didn't want to jeopardise their reputations, persuaded better judgement to prevail.

Why is the star wars concept so far-fetched for a technological society which accomplished moon landings 40 years ago? For a start, look at the target. The moon pursues an orbit which can be calculated to the last fraction of a percent for millennia; a missile is launched at unpredictable times, and follows a course which is deliberately made difficult to follow.

But even if you could get near to the enemy missile (remember that all the time you are approaching it at five kilometres per second) the next problem is shooting it down. Even in WWII there was nearly as much damage done by anti air-craft shell fragments as there was by the bombs themselves. How would you shoot down a missile over a densely populated area? There is also the difficulty of multiple missiles. Obviously, once it is known that there is a defence system which shoots down missiles, an aggressor will despatch missiles in swarms rather than singly. The mind boggles at the thought of having to track multiple missiles and deciding which the lethal one is.

The protagonists of this type of warfare tell us they have solutions for all these problems. Indeed, they have done tests of sorts. Actually, there were two. They weren't exactly true simulations. The enemy missile was released together with a warning "I'm coming". The decoy was a tethered balloon, not another missile at speed. Even then, one of the two tests resulted in failure.

Please forgive me; all this time I have led you up the garden path, by pursuing the 'reasoning' of the US military. This reasoning was meaningful in the days of the old enemy, the Soviet Union. This enemy no longer exists. The new enemies are the entire world's people who have been alienated by US arrogance. Their weapons will not be ballistic missiles or even laser-guided bombs. Their attacks will not come from well-known launch areas; they will not be aimed at well-chosen targets. More likely, they will look like the September 11 attack on the New York World Trade Centre or the Bali Tourist Hotel bombing. They will not be detected by Pine Gap radomes; they will not be vulnerable to anti-ballistic missiles. They most likely will not come as the outcome of long debates in the war-rooms of large nations.

You don't have to be particularly brilliant to work all this out. Nor is this unknown to the US, and the rest of the coalition of the unwitting. What then, is the purpose of the spending of many billions of US dollars on a system once already discarded as unfeasible?

I can see many factors. One is religion. Bush and his cohorts are on a crusade, or, more likely, a never-ending series of crusades. It comes out of his speeches, the allies he chooses, but mostly out of his policies. Like the crusades of the Middle Ages, these wars are not based primarily on reasons.

It would be wrong, however, not to see the reasons behind all this religious fervour. There is the drive for oil security, there is the need to prop up the economy, there is an industry in dire straits economically, and there is even a population which has expectations, even though they are the wrong ones. There is now an election coming up. The stock market is shivering. All the government has in the way of mechanisms against the collapse of the economy are interest rates, which are now at rock bottom. You and I would be scared too. In short, much of US bluster and arrogance is due to fear, and the new star wars initiative comes from there, too.

Unfortunately, there is no joy for us. Tied as we are to the US, we are affected by the wounded beast's thrashing. The good news is also the bad news. What can we do? We must resist, as far as we can, the way our government makes us party to the new imperialism, its weapons and its ideology of endless and pointless consumerism.

DIATRIBE 118 - Once Again – A Major Stuff-Up

Currently, your government is spending \$500 million in giving you a so-called replacement reactor at Lucas Heights in NSW. What will it do for you? The answer is – buggler-all. The old reactor was put in to introduce Australian technicians and scientists to some of the nuclear technologies which would enable them to participate in the noble art of making atom bombs in the good old days of Philip Baxter, the then head of the Atomic Energy Agency, fore-runner of ANSTO, the Australian Nuclear Science and Technology Organisation. Philip Baxter made no bones about wanting his very own nuclear bombs. When that project was abandoned, mainly due to popular resistance, they found an excuse for persisting with the Lucas Heights Research Reactor, which allowed them to carry out experiments in a highly radio-active environment. They could also produce radio-active isotopes, which amongst other things could be used for nuclear medicine. The reactor, as a by-product, produced highly radio-active waste in the form of used fuel rods and sundry gear polluted with radioactivity.

In the early 1990s there was an inquiry into the project of building a replacement reactor. There were two major questions: Did we need a replacement for the ageing HIFAR, and if so, what should it be? Needless to say, bombs were not mentioned. Instead, there was great stress on medical isotopes; after a lot of evidence that it wasn't necessary to build \$500 millions worth of reactor to avoid having to import materials which were readily available from overseas, that no lifesaving technology depended on these isotopes, and that Lucas Heights these days was a suburban location which was unsuitable for such a facility, findings were deferred to another inquiry to be held at a later date.

The subject arose again a few years back, when it became apparent that the major stumbling block in the way of a new reactor was waste disposal. The precondition of the reactor building program was that, before starting on it, a credible plan for disposal should be in place. There had been a multi-million "consultation" process trying to identify a site. It was obviously a sham, because the nature of the dump had been pre-determined as a shallow trench, a non-solution rejected by all experts, and it was clearly to be sited in the outback, where the main protests would come from indigenous groups. And who cares about them? Certainly not our government.

As for the other preconditions for the new facility, as expected, they, too, were ignored. There was no second inquiry; there was no explanation as to why this antiquated and expensive method had to be used, there was no suggestion as to why we had to spend \$500 million on this research when our universities and other research bodies were being starved of funds. The only explanation was that if we had no reactor facility our voice in the International Atomic Energy Commission would be devalued. Given that this voice had never been used other than to support Uncle Sam, having it diminished hardly seemed a tragedy. Besides, this argument sounded like a cheap invention, although cheap may not be the word for it. Amongst the other preconditions that were ignored was the need for waste disposal, which is currently still hotly contested as South Australia, which was singled out for the honour of hosting the dump, has so far been decidedly stropky about accepting it.

This charade has now gone on for well over a decade, the governments (this is a Lib-Lab initiative) no doubt hoping that opponents of the scheme will get tired of protesting. The reverse has happened – the people concerned, the residents of Sutherland Shire, have got more stropky. Ultimately, as Hitler used to say, and Bush says now, the government's patience got exhausted and they decided to go ahead with the new reactor regardless of the safeguards which have not yet been met, and which, in some cases, like waste disposal, can never be met.

As the skills for reactor construction are not supposedly available in Australia, the contract went to INVAP, an Argentinean firm which also has never built a reactor. This is not a major problem. Building a reactor of this type is probably similar to other chemical engineering projects. The major problem is the division of responsibilities between the contracting parties. While it is true that from time immemorial numerous entities had to co-operate to achieve the construction of major projects, what has changed is the culture of the management of these projects. It used to be understood that responsibilities went with the contracts, and could not be shed simply by blaming people further down the chain of command. Yet this is precisely what happens with today's numerous stuff-ups in industry. Victorians can recall the King Street Bridge, the Westgate Bridge, the Burnley Tunnel, the Longford Gas explosion and others, for all of which attempts were made to lay the blame on subordinates. You would expect the reactor project to go the same way, and you wouldn't be wrong. Let me just list the bodies involved:

- ANSTO, the Australian Nuclear Science and Technology Organisation, the body operating the reactor and supposedly charged with overall responsibility
- ARPANSA, the Australian Radiation Protection and Nuclear Safety Agency, charged with supervising certain, not well-defined aspects of safety of nuclear operations,
- DSR, the Department of Science and Industry, responsible for Waste Disposal,
- INVAP, the project main contractor
- And any number (perhaps hundreds) supplying materials and labour.

The reactor project has been beset by problems of a major nature, such as having been sited on an earthquake fault. Many of these major problems were only discovered by bureaucratic leaks or investigations by media and groups opposed to the project. It doesn't inspire confidence, either that many of these discoveries came long after the problems became apparent.

All these symptoms are evident in the latest disaster. Last December the subcontractors drilled holes in the bottom of the 7 storey high stainless steel tank which retains the coolant for the radioactive core. They had not been given the OK to do this, and many of the openings were in the wrong place. The holes in the tank therefore didn't match the holes in the massive concrete shell which had already been cast. The reason for the wrong placing soon became clear. It is a problem which is ever-present when engineering drawings are exchanged between the US and Europe. The US has a different type of projection and if you don't watch out for this, your finished articles come out as a mirror image of the design.

These latest faults, although as I said, apparent last December, didn't hit the public until May this year, and then only due to a whistle-blower. Welding up the wrongly drilled holes is not simple. If stainless steel is heated, it loses its corrosion resistance. If the repair work turns out to be faulty, it may well not be able to be repaired once the tank is taken into service and becomes highly radioactive.

However, the major worry is that if this particular sub-contractor was unaware of the difference in drafting conventions, how many more such mistakes have been made? A few years ago, the US lost a Mars probe which crashed because its computer had been programmed in metric units rather than imperial units. This confusion, which has now gone on for a couple of centuries, bedevils entire industries, because US engineers are adamantly refusing to fall into line with the rest of the world.

There is a story of a US astronaut being asked what his final thoughts were on take-off, to which he is supposed to have replied "I keep on thinking that every part of this craft has been supplied by the lowest tenderer".

As the new reactor goes into service, we have to bear in mind that it was built by subbies who didn't know what they were doing, that the major contractors were proven liars and cover-up merchants, that it was not necessary in the first place, and that it is being supplied by the lowest tenderer. Not much of a prospect for the people of Sutherland Shire, who must live in fear of another Chernobyl.

DIATRIBE 119 - The Day New York Ran Out Of Juice

One day, about the middle of August, the electricity for much of the northern US failed without warning. There had not been a "terrorist" attack on the system; there had not been, as on one previous occasion, a massive sunspot disturbance; there had not been sabotage. There had not even been a change of millennium date. It was simply a case of one power station falling over, followed by a domino-effect-like collapse of much of the system.

For many people, this raises numerous questions. Why was the failure not limited to one station? Why did it take so long to reconnect the system? Why was the entire system so vulnerable? Could it happen here?

Answering the last question first, the answer is: it has happened here. A few years after the Snowy scheme was tied into the Eastern network, there was a massive "outage" which left much of eastern Australia without power

for several hours. The fault was traced back to one little telephone-type relay which formed part of the safety system guarding the system. For those interested in such details, here they are:

This safety system was triggered either by an overload, resulting in excessive current, or by a drop in voltage. Either of these two conditions would trigger a circuit breaker to isolate the faulty section. Each of them was carefully tested before commissioning. Unfortunately, came the day when a real overload occurred on the line; this not only pulled the current up, but the increased current pulled the voltage down, as a natural consequence. At the relay where the two conditions met, the two conditions cancelled. As a result much of eastern Australia was without power for many hours. A similar situation apparently occurred in the recent US case.

Why, it is natural to ask, cannot power be restored quickly, once the fault is fixed? Most of the generators are rotary machines which need to be restarted, often laboriously, once they are shut down. What is more, they have to be brought up to the right speed and in synchronism with the rest of the grid. Each generator's return sends a shock through the system. It cannot be allowed to speed up or slow down in major ways when this shock arrives, because this would upset some of the connected equipment. Indeed, that is the problem which shuts the system down in the first place.

Each power-station has means of regulating all these effects when it is on its own, except that there is one in the grid which regulates the overall frequency. But when there is a major disturbance they all mutually interact, and the system becomes unstable, with the controllers fighting each other. This effect gets worse as the number of stations on the grid increases and the hierarchy of controllers gets more complex.

Those of you who are more familiar with recent technology will know that the control of power stations I have so far described is what they did in the 1930s. That's 70 years ago; and electrical control technology of all things is the sort of thing which has advanced most in that time. All this is true. The problem lies in the organisation of power station ownership and electricity distribution.

As you can see, one has to treat the whole network as a unit to be able to manage it. Also, if you wanted to minimise greenhouse gas emission, you would want to optimise the grid so that you could maintain the most efficient stations on stream at any one time. In Australia before the advent of so-called economic rationalism, with all electricity produced by publicly owned systems, this was about to happen when the privatisation disaster overwhelmed the system.

Instead of making cleaner electricity the touchstone for power generation, predictably the generator owners chose costs, or I should say perceived costs. After all, brown coal and water, as well as wind energy, cost whatever price you wish to put on them. God or nature or whoever raises the waters to the heavens or the puts the fossils into the ground fortunately doesn't send us bills. To the cost of sending water down the Snowy we have to add the considerable cost of *not* sending water down the Murray and vice versa. These decisions are bad enough when they are made by politicians; they are generally worse when they are made by accountants. Currently, neither of these groups are likely to worry too much about the environment, other than when farmers' votes are likely to influence their parliamentary environment.

Furthermore, there is competition between States and power companies. And even if, as I said, the raw materials for power generation are provided by the deity, their ownership here below is an unholy mess. So – and here I am only surmising – when instability of the system demands that one or other station should switch off, it is likely that each generator should wish to be the last to do so. This is particularly attractive in states like Victoria, where the pool system can net thousands or even tens of thousands of dollars per kilowatt-hour when power gets scarce. I kid you not.

The electricity that comes out of the grid is identical, regardless of whether produced next door or half a continent away. However, the cost and problems of distribution are vastly different. When governments decide that there should be "competition" between generators, they create the pre-conditions for – amongst other things – precisely the sort of debacle which affected the northern US the day the power went off. And when the power goes off, it isn't just the lights that go off. If there is no stand-by plant, water doesn't get to the upper storeys in tall buildings, toilets and refrigeration stop working, lifts stop halfway between floors, computers crash, the mind boggles.

As I said, despite all the improvements in control technology, the system that broke down in the US may well be in worse shape to-day than it was many years ago before so many extra stations came on line. There is little chance of finding out, because all the people in these systems have vested interests in playing the blame game. This isn't hard when a system is so complicated. The chances are that it will result in some underling being landed with the mess because a real fix would cost billions, and would have to be left in the hands of people like Enron.

What does all this imply for us in Australia? It bodes ill. We have increased generating capacity vastly in recent years. The present accounting systems may well make it appear that the oldest and least reliable stations produce the cheapest electricity. Because the privateers paid too much for our generating capacity in the expectation that they would be allowed to raise prices ad infinitum once they had bought into the network, they are now crying poor and either trying to sell their stations or starving them of capital funds.

Meanwhile, commercial and private consumers as well as subsidised aluminium smelters (particularly the first two) are placing huge variable loads on the systems, with peak loads due to air-conditioning certain to exceed the capacity of the system in the near future, either next summer or the one following. An outage such as the US one would destroy vast quantities of food-stuffs and kill any number of patients in hospitals. Will anybody care until it happens?

DIATRIBE 120 - The "Intelligent" Machine, Or Charlie Is My Dalek

After 25 years in limbo, the ABC has dug up the old sci-fi serial *Dr. Who*, whose intelligent robots, the Daleks, were given the worst human characteristics the script-writers could think of. With remarkable prescience, these robots had all the attributes of George W's war-mongering cabinet wheeling themselves everywhere screaming "Exterminate, exterminate!" at the slightest or even no provocation. This concept of a robot is relatively meaningful compared to the constantly recurring nonsense-creation featured by the media. For some reason, whenever the corporate inventors revive the domestic robot idea, it is always seen doing the vacuum cleaning around the house.

What you can see from this is that these inventors are invariably men, who have no idea how varied housework tasks really are, because they never do any. I was reminded of this the other day when the latest of these creations, or rather monstrosities, was paraded on TV. Looking like an oversized cow-pat, it crawled at snail pace around the floor presumably using some sort of suction system to pick up dust. There was no visible power source; a real vacuum cleaner could not run off a battery because a battery couldn't store enough electricity to vacuum one room, let alone a house, and still fit into this shell.

It must be all of 10 years since the *Women's Weekly* imported a domestic robot which purported to be capable of doing housework. After a short while they had to send it back because exhibiting it would have made the management look ridiculous.

What is it that keeps on motivating these idiots to replace workers, with their complicated and often highly intelligent capabilities, by some simplistic piece of machinery? Recently we have seen a revival of the 1927 silent film *Metropolis*, which shows the downtrodden workers tending mind-numbingly boring machines in tasks which clearly even in those days would have been left to a machine. The workers, in this film, are referred to as the "hands", and the bosses are called "the Brain". Nowhere are the "brains" shown to perform tasks that the workers could not perform since their brains are incapable or matching their bosses' mental abilities.

One of the functions of the capitalist system is to persuade workers that they are inferior. From early youth workers are brainwashed into believing that bosses have some special qualities which sets them naturally above others. In Huxley's *Brave New World* this indoctrination is enforced by sleep conditioning, which inculcates a class consciousness in everyone, from the highest to the lowest in their hierarchy. Our system doesn't enforce class position in this way. It has thousands of other, more subtle methods of imposing dominance. One of them is the constant dwelling on the notion that workers are stupid. This means that their work can be done by some stupid machine. While this may have been sometimes true 200 or more years ago, to-day workers are not employed except where their special abilities as humans are needed.

What are humans especially good at? They can adapt to variable situations with remarkable flexibility. When you bring a car to a halt at a line at an intersection, your mind has to compute, from a variety of observations, the speed of the vehicle. It then has to compute, from another set of observations, the pressure on the pedal required to achieve the deceleration required to bring the car to a stop in the required distance. Hopefully, at the same time your mind will be able to keep track of road conditions, make decisions as to whether to deal with hazards by altering your braking effort or by changing direction. All these decisions are not conscious once the practice of driving has become ingrained. The idea of a car driven by a robot is absurd. Similarly, controlling any other machine requires a mixture of practice and natural ability. When you ask workers about their skill, they will invariably underestimate them; except for bosses, who will equally invariably claim magical abilities.

What are machines good at? They can go through repetitive actions at sometimes incredible speeds. When I hit a key on my computer, unbeknown to me, the machine performs literally thousands of operations before the letter appears on the screen. Depending on what I am writing, most of these operations will be unnecessary. They happen so quickly that to me, the character appears on the screen the instant I hit the key.

However, in order to make all this happen a human is required to write the program, which is then repeated every time the machine carries out its function. Indeed, it required a human to construct the machine in the first place. Computers don't play chess; they carry out the instructions of a programmer. The only reason why a computer sometimes beats a grandmaster at chess is because it can go through alternative moves with unbelievable speed. Most of these moves are by-passed in the mind of a human chess player. A computer therefore doesn't play chess in the strict sense; it simply decides which of its pre-programmed moves is most appropriate under the circumstances. Indeed, the human opponent, after playing the program for a while, will detect the underlying program and be able to counter it successfully. In turn, the programmer can vary the

computer's response, and so on. Ultimately, this means that you have two humans playing, of whom one plays via a machine. The miracle is not in the machine, but in the humans,

Computers, then, cannot be seen as "superior" to humans at any task other than **repeating moves at speed**. Human work does not require this speed when we can use a machine to do it; also, machines can **exert strength** beyond that of any human.

In this way, machine and human complement each other. Why should a machine be tortuously and laboriously made to attempt what humans do with little effort? The answer is simple. It lies in class hatred and fear. Whatever the Tony Abbots and the Peter Reiths of this world pretend, they are dependent on every worker in the system. And while some of these workers will assuredly be replaced by machines, or their processes be made obsolete, new processes will arise which still require humans as the sentient part of the production process. Human beings are not, and never will be, redundant.

DIATRIBE 121 - 50 Years - Sydney Opera House

My humble apologies for generally spending all my air-time on technological disasters. Unfortunately, that's in the nature of being a Luddite; besides, if technology wasn't such an almost unmitigated disaster presumably I wouldn't be a Luddite. However, this time round we have something to celebrate. It is about 50 years since the opening of the Sydney Opera House.

There are many reasons for regarding this work of art and technology as a major achievement. Those of you who wish to look at its history more closely will find books in your local library relating to the ups and downs of this great project, the most recent by Sylvia Lawson, a novel called *The outside view*. My main concern today will be the pioneering work done by the workers in participating in developing entirely new structural techniques, in conjunction with the architects and engineers on the project.

From time immemorial large public spaces allowed designers, crafts-people and artists to express themselves as part of a community of like-minded individuals. From the tomb builders in ancient Egypt to the stonemasons carving gargoyles for Middle Ages cathedrals to the painters adding final personal touches to churches and chapels in the not-so-distant past, there were always nice touches that went beyond the mere execution of what was demanded by the boss. I bet that the concrete of the Opera House bears witness to some of the aspirations of the workers carved into the form-work.

Of course, as many of us old-timers remember, right from the beginning there were doubters. Obviously, as always with a project of this size and nature, there were uncertainties. The competition for a design was won by Jorn Utzon on the strength of what were not much more than sketches. No-one had ever built such a huge structure before which depended on what went little beyond the curvature of roof shells to hold it up. And while the building was sold on its external appearance first and foremost, it was the quality of the acoustics of the two halls and the convenience of staging theatrical performances which would ultimately decide its acceptance by the people of NSW and Australia.

There was also the question of money. The original estimate was clearly wildly below the true costs; but then who would have accepted a project with a cost which would have seemed astronomical? No-one had any idea of what such a structure would cost. However, there were precedents for such major projects being left in an uncompleted state. The Vienna Cathedral was a good example; left with just one spire when the money ran out, everybody now accepts this as a design feature and it has become an admired feature and a landmark which it never would have been had it looked like every other Cathedral instead of a being a half-finished artefact. Gaudi's incomplete cathedral in Barcelona is only now being finished, based on designs by Melbourne architects and developed at RMIT. The real stuff-ups in the Opera House project did not occur with the original team. The vandals who took over with the usual promise of "faster, cheaper, better" did that.

Firstly, they re-wrote the specifications, which meant interchanging the purposes of the two halls. Then, they decided that the most important feature of the theatre was that patrons should be able to promenade the harbour side of the halls during intervals. This meant a reduction of the stage area of the opera theatre, which, under normal circumstances, should be almost equal to the auditorium in size. Much of this would have been occupied by a revolving stage, and thereby hangs a tale.

The original revolving stage design came under a contract with an Austrian design, and was supposedly managed by the contractors, using local trades' people. When it transpired that the amount of money provided for the stage construction was inadequate, the contractors walked out on the job. Their excuse was "Labour problems". Actually, there had been very few of those, because working on the project was interesting and inspiring.

Given this impasse, the workers on the job got together with the Austrian project engineer who was on side with the workers and had had a gutful of his bosses. This consortium took over the contract, providing one of the few examples of workers' control in Australian industrial history. This event must be put into perspective. This was

the time when the Builders' Labourers Federation under Jack Munday had exerted its clout in NSW, and had made history by saving the historic Rocks area from the developers by creating the so-called Green Bans.

Joe Owens, who was shop steward on the revolving stage project, had a most difficult task, one which bosses and their stooges claimed was impossible – namely, that workers would actually run a job rather than spend their efforts in fighting the bosses over getting decent wages and conditions. At stake was the credibility, not only of the BLF leadership, but of the whole principle of workers' control. As could be expected, there were some minor hitches, as some of the crew wanted to see their internal committee of management as the traditional enemy. However, by and large, the stage assembly project was completed with a minimum of trouble.

What happened to the Opera House as a whole? Having replaced the original designers and handed the project over to the bureaucrats who had run a vendetta against Jorn Utzon, the cost escalated to about ten times the original. The completion time was equally subject to endless delays. The revolving stage, together with the rest of the stage machinery, was discarded to make room for the promenade. We were left with a third-rate opera stage inside a magnificent building.

However, all is not lost. Now that the whole debacle is seen in perspective, Jorn Utzon's son has been entrusted with the task of restoring at least the foyer to the original specifications. The chances are that Jorn Utzon will not live to see the end of the rework. In that, he would be experiencing the fate of the builders of the great cathedrals of the past, which took many decades to build when the projects outlived their originators. Nothing is now left of the fame of the detractors, who are known only by the size of their stuff-up. What lives on, apart from one of the world's wonders, is a unique experience in workers' control. It would be wonderful if the restoration of the original purpose and interior could also be done under the workers' aegis. But that is more than we can hope for, 50 years after the first opening.

DIATRIBE 122 - Beyond Technological Intervention?

The day after Boxing Day, a horrific earthquake in Iran claimed the lives of at least 30,000 people in Bam, a town few of us had even heard of, let alone are familiar with. First of all, we should ask ourselves why nowadays every one of these natural disasters seems to have such a catastrophic effect in terms of death and destruction. After all, in 1908 a meteorite exploded above Tunguska, flattening every tree within a 50 km radius. Yet no-one knew about it until it was researched 20 years later. It is probable that no-one was killed or even injured in this catastrophe.

The main reason why the impact of natural catastrophes seems to increase from year to year is the increase in world population which, within my lifetime, has risen from one and a half billion to around 6 billion, the vast majority of whom live in cities. Unlike in 1908, apart from Antarctica, there is now hardly an uninhabited spot on earth.

Had the population remained stable, or increased at a more reasonable rate, and had technology been used to look after human needs, the horrors of natural catastrophes may have been largely avoided. Take the city of Bam, devastated in the recent earthquake. It is built largely from mud brick, a very suitable construction for a dry climate, particularly where population density is moderate. Indeed, Middle Eastern civilisations had learnt to cope with these conditions. Actually, earlier nomadic peoples had probably even less to fear from the elements. Few people die when a tent collapses on top of them.

In the event, with mud brick construction, you get the worst of all possibilities. Mud brick walls are generally at least 30 cm thick, and when they crumble and collapse it results, as you saw on TV, in heaps of very heavy clay dust, the nearest thing to a collapsing tunnel or well. There is little hope for people buried under this stuff. What appears even more dangerous is the fact that even though the buildings apparently contained upper storeys held up by steel beams, there was no straw or other fibre in the bricks to provide reinforcement. That even went for the huge fort which also crumbled to dust.

Some of you remembered perhaps how the Israelites in Egypt were supposedly punished by the Pharaoh who forced them to build without straw. From time immemorial it has been understood that building materials with little tensile strength such as clay or concrete need reinforcement they are to withstand even moderate vibration. One wonders if by this time the traditional understanding had faded away.

Mind you, this is all just surmise on my part. However, with sudden increases in population, it is not unusual that buildings are erected by fly-by-night contractors who ignore old-established practices. This is even more likely when materials are hard to come by, such as straw in the Middle Eastern deserts. . Most of more recent structures in Bam date from the 17th and 18th century. And, having myself participated in mud brick construction, I can assure you that walls constructed without reinforcing fibres will stand up to centuries of steady loads in compression. The temptation not to bother with reinforcement must have been great. And while everybody must have known about the ever-present danger of earthquakes in the region, in the minds of the rulers the threats from human enemies apparently seemed more real than the threat from the forces of nature.

The way in which past rulers used their wealth and abilities to prepare against real or imagined threats to their class, while ignoring the real needs of the population, is in no way different from what is happening to-day and right here. Threats to the lives of young people in our society in the short term are motor-car accidents, alcohol, smoking, prescription and non-prescription drugs and the increasing threat of war. However, the massive economic and technological power of Western countries like ours is rarely used to deal with any of these very real and ever-present threats. Instead, our rulers invent their own, and magnify them until the invented threats can overshadow the real ones. The current most fashionable threat is so-called terrorism which, as some of us correctly predicted 25 years ago, has taken over from the equally nebulous threat of communism. The common thread to both of these is that they threaten rulers far more than the people at large.

Let's look at the positives in basic technology. Water supplies are a good case in point. All over the Middle East there are wells, and Australians would think of them in terms of wells dug next to individual houses and farms. Nowadays, we would think of Artesian bores. Wells in the Middle East were a sort of cross between the two. They were fairly deep excavations (as deep as twenty metres or six storeys) and they were, deep below the ground, interconnected horizontally. They thus formed reservoirs as well as tapping the water table. In extreme cases, they extended to the foothills of the mountains, thus forming below-ground aqueducts. The digging of these aquifers was a highly respected craft passed from generation to generation, and no-one queried the judgement of its practitioners when they declared a site unsafe for whatever reasons. Together with this craft approach went a co-operative philosophy which worked well for all its participants. That, however, was then and this is now. Israel is no longer an equal partner in what was a mutually beneficial arrangement. Instead, it uses its nation status as a means of blackmailing its downstream neighbours even when there is enough water to go round. Actually, there is a technological fix in this case as desalination of sea-water is quite cost-effective where there is plenty of solar power available.

As I understand it, to-day the underground water supply lies in tatters. And just as the more recent occupants of Bam were more concerned with maintaining as a tourist attraction a fancy mediaeval fort now shown to have been a fancy sand-castle than with creating earthquake resistant structures for its residents, the apparatus of western consumerist society is currently selling the Star Wars fantasy as the counter to Australia's problems (I kid you not, it's in the *AGE*), and is desperately scanning the skies for some non-existent asteroid which will imperil the earth, while global warming is proceeding inexorably, and with little counter-action.

As Bertolt Brecht might have said – we don't want more technology, we want a different lot.

DIATRIBE 123 - Where Has All The Water Gone? – Part I

In my last talk, I never got around to discussing the positives in basic technology as I had intended. Water supplies are a good case in point. All over the Middle East there are wells, and Australians would think of them in terms of wells dug next to individual houses and farms. Nowadays, we would think of Artesian bores. Wells, or cisterns (called Wadis) in the Middle East were a sort of cross between the two. They were fairly deep excavations (as deep as twenty metres or six stories) and they were, deep below the ground, interconnected horizontally. They thus formed reservoirs as well as tapping the water table. In extreme cases, they extended to the foothills of the mountains, thus forming below-ground aqueducts. The digging of these aquifers was a highly respected craft passed from generation to generation, and no-one queried the judgement of its practitioners when they declared a site unsafe for whatever reasons.

Together with this craft approach went a co-operative philosophy which worked well for all its participants. That, however, was then and this is now. Israel is no longer an equal partner in what was a mutually beneficial arrangement. Instead, it uses its nation status as a means of blackmailing its downstream neighbours even when there is enough water to go round. Actually, there is a technological fix in this case as desalination of sea-water is quite cost-effective where there is plenty of solar power available.

But let's go back and compare the ancient water technologies with our present-day methods. The ancient Egyptians, had what we nowadays would call some primitive ways of providing water for domestic use and for growing crops. The way to water crops was by flood irrigation. Rivers like the Nile which originate in highlands flood regularly once a year when the snows melt, which must have seemed pretty miraculous to people who live thousands of kilometres downstream, near the delta, and who had never been anywhere near the source and indeed could never talk to anyone who had. The wily priests had a pipeline to their temple communicating with the Nile and could observe the beginning of the rise of the river in spring. This allowed them to make "accurate predictions" about the flood's onset, predictions which invariably came true, thereby convincingly demonstrating the power of religion which makes rivers rise.

However, apart from the abracadabra stuff, they had some pretty sophisticated bucket chains, which were either operated by humans or by animals such as mules, through gears very similar to what we have today. It must have been this sort of technology which watered the hanging gardens of Babylon, one of the world's wonders of antiquity. (A recent documentary insisted this was done by Archimedean screws, a most unlikely conjecture,

given that no-one has ever seen this technology used in agriculture, whereas variants of the chain of buckets are in use everywhere around the globe).

Visitors to the Middle East (why is it still called the Middle East when it's actually our far North-West?) have the feeling that in the last couple of millennia the climate must have changed drastically because the area is so dry nowadays. In fact, even though there has been some minor change, the amount of rainfall is much the same today as it was then. Inhabitants of Australia, which is the world's driest continent, should realise, that when it comes to parched earth, we are well ahead of others. So how do so-called primitive people cope with the water problem? Can we learn from them?

Recently there was a repeat of an archaeological doco showing that the ancient city of Alexandria, founded by Alexander the Great in around 300 B.C., was built on a huge system of cisterns which was based largely on storing Nile water. In places it is three storeys deep. Nor is it purely a work of civil engineering. The columns which support the city above have elaborate capitals, which makes one think that perhaps these were meant to be underground pleasure palaces for the rich. Goodness knows where they got their light from.

After 2000-odd years these cisterns are still full of drinkable water. The work of creating these cisterns must have been prodigious. The storage capacity had to be carved from the bedrock, unlike present-day water storages, which make use of natural valleys and other land depressions. The amount of earth shifted to create these cisterns must have been comparable to the volume of the Pyramids.

As I said earlier, not only was the city which was then the capital of Egypt standing on cisterns, but such excavations and underground canals supplied water to much of the Middle East. The skills which built these systems may, for all I know, still exist, although I suspect that the brute force of machinery has taken over; which leads me to the present day. Having unleashed the might of the internal combustion engine, we can look at things differently.

Instead of saving water, we can start with the assumption that it is all a matter of money. That's what they thought in the 1950s, when the Snowy Mountain scheme turned the east-flowing Snowy around to water the inland. We are nowadays paying for the folly of this, as the water used for irrigation salinates vast tracts of previous prime agricultural land, and we reluctantly have to give back to our rivers a little of what we have stolen from them.

What are we doing with all this water? In our cities we use a lot of it to wash our wastes into the ocean, wasting not only the water but also the nutrients which should be used to grow crops for human and animal consumption. We pour water onto useless lawns. In the country we use massive amounts of water, to grow totally unsuitable crops like cotton and rice for export. In effect we are exporting precious water which we can ill afford. We still run our irrigation water through open channels, which means that after evaporation scarcely one tenth of the water goes to growing crops, with most of the rest salinating the paddocks.

What has this to do with technology? It is technology which allows us to cheaply divert rivers, tear up the soil for destructive crops, build water closets for washing shit into the sea and, finally view all of this as just a matter of the money economy, just as we value everything else. Most importantly, it is technology which allows us to think in terms of monetary costs, when it is social cost we should consider.

DIATRIBE 124 - Driven To Distraction

It's on again. The mainstream press has its regular spread of stories of technological changes which will supposedly make motor-cars safe and faster. Safer - yes. Safe - no. As one may expect, the addition of seatbelts, 4-wheel brakes, improvements in tyres, extra mirrors help a good driver. Less noisy cars make good drivers less tired on long trips. The addition of electronic gadgets, however, is not an automatic blessing (forgive the pun). The use of mobile phones in cars has already been proved to cause extra accidents including lethal ones. In one recent case, a driver punching in an SMS message killed a cyclist. I have actually come across a motorist doing a U-turn in King Street in the busiest part of the city of Melbourne while using a mobile phone. Of course this is illegal, but unfortunately few motorists care a stuff when it comes to laws they consider unnecessary.

When you read letters to mainstream motoring columns, you would think the world has come to an end because the speed-limit has not been extended by the tolerance of the car's speedometer. This can easily be checked by the motorist, and should be, because the reading is affected by tyre pressure and wind-force. However, in city traffic the five percent or so that you can gain or lose applies only to the time you are travelling freely rather than the time you spend stopped in traffic or crawling along with it. In short, the savings is buggery all.

Even worse are the gimmicks which are now fitted to cars in the name of safety. Amongst these are airbags. These were developed in the US where, for a time at least, drivers regarded it as an interference in their personal liberty to be forced by law to wear a seatbelt while travelling. They invented endless arguments as to how seatbelts were actually a hazard rather than a safety measure, mainly based on the infrequent cases where drivers were thrown clear of a rolling car. They didn't wish to know about the far more common case of drivers

being thrown out of a rolling car which then rolled over them. This is particularly common with tractors, which are a deadly hazard if not fitted with a roll cage and which are rarely provided with seat-belts. While new tractors are fitted with roll-cages as standard, this is not obligatory with old machines. Some 50000 –100000 grey Fergusons are currently in use, each one hell-bent on killing or maiming their driver. Airbags, when actuated, form a major hazard, not least to your ear-drums. Front air-bags alone on the driver's side are rarely effective, because few impacts are directly from the front, and if they are, a collapsible steering wheel is as effective, or more effective than an air-bag in the steering wheel.

In any case, safety is a major consideration only for a few drivers. Where options such as mag (magnesium) wheels are available as alternatives to safety features these are almost invariably chosen by new car buyers over something that may save their or their passengers' lives. A particular case in point is the current prevalence of so-called SUVs – Sports Utility Vehicles – which are sold on the basis that they will kill your rival driver before he or she gets around to killing you. They even have a special instrument – the bull bar – for killing pedestrians. In order to justify these anti-social propensities they are advertised as “off-road” vehicles but are hardly ever used anywhere where there are no sealed roads. Worst of all, from the user's point of view, the safety aspect is a myth. Because of their high centre of gravity, SUVs are accident prone to a much higher degree than ordinary passenger cars. In addition to all these drawbacks there is the enormous fuel consumption, the cost of tyres, and the way the “off road” features like the extra differential gears add to maintenance costs.

This much is reasonably well known and I have talked about it previously. What I want to stress is the way present-day features of cars actually increase the risks of using this form of transport. We have talked about the use of mobile phones. But what about the use of loud sound systems? We used to go along bush roads with the windows wound down despite the dust so that we could hear the tooting of car horns as they came around the bends; boards reminded you to take care and toot often. Nowadays cars travel around back roads with their sound systems blaring to make their panels throb, with their windows closed, in sound-proofed bodies at totally unsafe speeds. Where once you went for country trips as a form of relaxation, most of us nowadays, go there only if you absolutely have to. And yet the mainstream media talk about driving as if it were a “sport” and still call it “motoring”, a term coined in the days when gentlemen in peaked caps and plus fours sometimes took over from their chauffeurs to prove their driving skills. I still remember an Armstrong Siddeley service handbook which began “The owner should instruct the driver.” Those days have long gone, but the illusion persists.

In short, the car companies have never made up their minds whether cars are a form of transport or some sort of sporting exercise. When you see a car ad on telly, it is always on the open road with not another car in sight. Young people are educated that having a driver's licence means having freedom, that the only problem on the road is the “little old lady” whose car holds them up because its engine “wouldn't pull the skin off a rice pudding”. To a certain extent they are right, of course. If all other cars were put off the road they probably could go a lot faster, at least until they hit the nearest tree.

It isn't just the traditional hoon who is impressed by totally unrealistic expectations when they get behind the steering wheel. Take this ad from a magazine. Let me quote:

Some drivers like to be seen in a high performance car – others prefer to drive one...Ours, is the absolute embodiment of sporting excellence, offering breathtaking performance from its turbo-charged engine which delivers 210 bhp and is capable of taking it from 9-60 in just 7.4 seconds

and so on and so on. Where is this placed? Some hoon magazine? Playboy or Esquire? Not on your sweet Nellie. Staid old New Scientist. And note the use of the old imperial measurements in a scientific magazine – clearly aimed at the oldies. And the advertiser? Not your old vroom vroom crowd but Swedish Saab, rated as the “Top executive Car”. No mention of airbags or even anti-lock-up brakes although they are probably there. Saab drivers, you see, don't need safety features. This brings me to the crunch.

The most idiotic concepts have been floated since the introduction of electronics and they relate to taking the actual driving functions over from the driver. I was already involved in one of these in the 1960s when asked to design an automatic headlight dimmer. Give a little thought to the circumstances under which you dip your headlights and you will realise just how dangerous such a beast would be. One of the latest proposals would actually stop a car's engine if someone remotely actuates an immobiliser, because they realise the vehicle has been stolen! Just imagine such a device malfunctioning or being maliciously activated in high-speed freeway traffic. You don't need to have a great deal of imagination; the answer is supplied frequently by red-neck police and their favourite game of chasing senseless kids.

The world is crying out for solutions, some of them technological, for real problems. Why do would-be inventors concentrate on useless and dangerous bits to hang onto motor-cars? The answer as usual is: MONEY. Even if only one car owner in every thousand buys your gimmick, it's still a world market of millions. And if it kills people by the hundred, it is only a tiny addition to those already killed on the roads. As a member of the Victoria Police's aptly named Accident Appreciation Squad told me years ago, when I asked them to ban automatic headlight dimmers; “they are fitted to Cadillacs so they must be O.K”.

The constant repetition of the mantra that driving can be made safe has led to the situation where people actually believe it. Worse still, they start out as young drivers believing that they are invincible and it is the other driver who makes the roads unsafe. Yet the very reverse is true. No engineer in their right mind would suggest

that a vehicle driven at 100 km/h relying on the reactions of a highly fallible and often impaired driver could ever be safe. To be safe, vehicles at speed would need to be confined to a track; if travelling at speed they would have to be constrained to travel behind each other at determined distances and they would require signalling systems interlocked with brakes and motion controls. In short, they need to be trains, and even they are not totally safe. As for the current mixture of sport and transport, it should be separated into vehicles limited to 40 km/h, with speedways provided for those who want to indulge in racing. For those who feel that traffic controls are too rigid, I have a suggestion: One day every year let all traffic controls be switched off, let all road laws be suspended and let the free-for-all prevail. Only joking, of course.

DIATRIBE 125 - Raping Nature

In the late 16th century as part of their conquest of Central America, the Spaniards sent one of their expeditions up the Amazon River. Their quest was, like all the Spanish conquests in the area, for El Dorado, a mythical region of fabulous riches dripping with gold, which also attracted Sir Walter Raleigh later on. The leader of this particular expedition, however, like all other gold-mad seekers after wealth, came back empty-handed but with a story to tell. All along the river, he said, there stretched an enormous thriving civilisation, but, alas from their point of view, not one which sported vast quantities of gold. This meant that his Spanish bosses didn't waste their time in subduing the locals but left them alone for some 80 years.

When they ultimately got around taking another look, the civilisation had disappeared. The country, mainly swampland, had reverted to the sort of low-grade vegetation which meant that nowadays it is only used for slash-and-burn agriculture beloved of McDonalds and other fast-food land destroyers. The original report was written off as the ravings of the fever-crazed mind of a failed Spanish conquistador.

In an excellent documentary on ABC television, some present-day scientists have followed up the original Spanish story, because they realised that it was far too detailed to have been totally invented. What they found was the reason why the civilisation they were looking for had actually almost totally disappeared. For once it wasn't the murder, rape and pillage, at which the Spaniards were so good, that had been responsible; it was simply that the diseases which these Europeans had brought with them had wiped out the local population which had no resistance to infections such as measles. But what about the native technologies which had allowed their civilisation to thrive where now there were mainly swamps?

It was found that the indigenous inhabitants had indeed lived well for nearly 1000 years. They had a well established system of roads and canals, the latter for draining and irrigating the land. Their agriculture relied on raising their fields above the river flood-levels, which must have entailed vast amounts of work initially. I suspect that this was done by co-operative labour, because there is little if any evidence of the sort of military culture which allows the large-scale employment of slaves.

But what about the poor soils? In investigating the elevated sections of the agricultural land the scientists found that some 30 cm of the topsoils were of a dark colour and were highly fertile. Investigating further, the analysis showed that unlike current slash-and-burn methods which leave black ash, which is entirely infertile, this dark layer consisted of an addition of charcoal which is highly fertile. It too must have required enormous labour to establish initially.

However, a major miracle took place. Apparently this dark layer is self-regenerating. Although the mechanism has not yet been established in detail, it appears that organisms in the soil, once it has been charged with charcoal, carry on the process of upgrading the fertility of the soil. Better still, in the manner of the cut-and-come again Magic Pudding, apparently this dark soil can be partially removed to other locations to enrich agricultural land elsewhere; over a period of some twenty years it will restore itself.

As yet no-one seems to know which of the thousands of species of micro-organisms present in these soils co-operate in this process. Clearly, from now on this mechanism, which was probably discovered by accident and astute observation, can be investigated and used elsewhere. Australia, in particular, is a country of poor soils and could benefit greatly by techniques such as these ancient ones.

Unfortunately, there are many obstacles in the way of investigation and introduction of such methods, all of them connected with the commercial exploitation of agriculture. For a start, it would seem unlikely that anyone could patent such millennium-old technology, now that it has been publicised so widely. Not that agribusiness wouldn't try. And not that governments like ours wouldn't want to support them all the way. But could you imagine the academic establishment not telling everyone that it wouldn't work, as they always do when the NIH syndrome (not invented here) occurs? Can you imagine governments, which have to be dragged kicking and screaming to extending the current ban on Genetically Modified Organisms, permitting the use of methods which would cost the chemical industry billions of dollars? More likely they would suddenly discover, after a lengthy period of keeping the matter quiet, that 1000 years of operation in Peru wasn't enough and that further lengthy tests are required?

If you think that the aspersions I am casting on the academic scientific establishment are unfair, let me cite an example from Alan Roberts' 1970s book *The Self-managing Environment*, where he explains that an article which appeared in 1968 in a reputable scientific journal proved conclusively that the forced enclosure of agricultural commons, which had spread misery amongst farming populations, was absolutely the only way to carry on agriculture. Given that the common was the predominant and highly successful way of farming all over Europe and Britain during the previous centuries, such a claim was equivalent to repeating, in an age when the air was filled with commercial jets, which powered flight was impossible. Nevertheless, the academic establishment joyfully embraced the *Tragedy of the Commons* article because it legitimated the prevailing view.

The history of this development is unfortunately typical of the way a rapacious society operates. The Spanish expedition going up the Amazon went past settlements which thrived in country similar to Australia's dry rainforest, where no crops would grow and where annual floods washed out any seeds which were planted. They took no notice, although the value of this method of agriculture was surely worth a multiple of whatever gold they could have hoped to discover. One could perhaps forgive them for not realising the havoc their diseases were causing to the indigenous people; it was after all due to profound ignorance, but could they be forgiven for disbelieving their own explorer, because he didn't tell them what they wanted to hear?

Then, as now, greedy bosses only listen to what they want to hear. We shouldn't therefore always accuse them of acting out of self-interest, but realise that their motives are their *perceived* self-interest. It is this alienation which leads them to destroy the planet and us with it. We can neither eat nor drink gold. We cannot shelter under a bank-balance. One of the things we need to learn is that ultimately revolution is not about acquiring what the bosses have, but about shedding the alienated ideas which this class has inflicted on all of us.

DIATRIBE 126 - GM Revisited

Once or twice previously my talk has been around genetic modification of food crops. My concern was that most of my fellow opponents of this commercial imposition on our nutrition seemed to concentrate on the possible poisoning of consumers. They were also worried about the spreading of these crops in an uncontrollable way; after all the notion of GM is that the genetic composition of the seed is changed. In effect an entirely new species is created, as the genetic engineers don't just draw on the gene stocks of allied plants to create hybrids the way agriculturists have done from time immemorial. No, in one famous instance, GM grain was created by crossing a common grain with genes taken from fish. The problem was not only that none of these exotic hybrids had ever existed before, but that irreversible changes could be introduced overnight, so that deleterious effects would not show up in time for it to be possible to stop the modification from spreading.

The industry responded by vigorously denying each of these objections as they were raised. Besides, as time goes on, the "poison" argument tended to fade as there were none of the expected epidemics, and someone out there seemed to be making money. Against this, Monsanto, the chemical company pushing the GM stuff, also persecuted Canadian farmers whose land was adjacent to GM crops and who had taken out legal proceedings against Monsanto; the counter suit, if I remember correctly, was that the farmers should pay for the pollution because the modified plants represented extra value. It was a bit like a leaking tanker spilling oil into a fishing area, and then demanding payment for its fuel value.

Let me go back a bit to what this bit of GM is all about. Monsanto's modifications did not, as a lot of people believe, result in a pest resistant plant; on the contrary. So called Round-up Ready strains are resistant to the weedicide Round-up, making it possible to spray heavier doses without damaging the plants. And, yes, you've guessed it in one; Monsanto supplies not only the GM seed, but the weedicide called Round-Up. Indeed; they now sell it as a package.

As I said, some of us were unhappy about the approach of some environmentalists, who only looked for proof that either excessive Round-up or the modified Soya itself were a danger to human life. Some of us were not only concerned about these direct effects, but also - and even more - about the indirect effects on agriculture and "market" driven changes to farming practices. In Argentina these effects were not long in coming.

Argentina was one of the first countries to embrace GM Soya together with the US. Its largest and most fertile region, the pampas, has been suffering from soil erosion since the beginning of the 1980s, probably due to excessive cultivation. To counteract the losses of fertility, the introduction of GM Soya seemed to be the ants' pants. As farmers started to experiment with no-tilling Soya-based agriculture, the problem of weeds had become massive. Round-up Ready Soya allowed agriculturists to pour on glyphosate weedicide in vast amounts, twice those recommended by the manufacturers, not that the manufacturers objected as they laughed all the way to the bank. Nor did the government object, they had their hands full with the aftermath of the currency crisis of the 1980s, which had devastated the Argentinean economy. Instead of watching and controlling the introduction of GM crops, the government ok-d their widespread introduction and by 2002 almost half the arable land in Argentina had been turned over to GM Soya. And because Soya was, in those early days,

highly profitable, speculators from the cities moved in and bought up land from the traditional small-holders. Even areas not traditionally farmed got into Soya at a rate unimagined even by Monsanto.

Lo and behold, even the rate of soil erosion decreased - temporarily that is. As the price of Roundup decreased Argentinean farmers and, presumably speculators, made a profit of around \$US 5 billion. All this, or at least most of it, had been predicted. A US academic researcher, Charles Benbrook, and others, warned that wholesale and unmonitored shifts to Roundup Ready Soya was causing "unforeseen" problems. He mentioned, amongst other things, shifts in the composition of the weed population, changes in soil microbiology and the emergence of superweeds.

As usual, where greed is involved, few people took notice of what he predicted. The area under Round-up Ready continues to increase. Farmers hurt by the financial collapse at the end of 2001 are increasingly moving into Soya monoculture. Benbrook reported that, due to Round-up tolerant weeds, farmers were using twice the quantity of weed-killer as conventional Soya farmers. They also averaged 2.3 applications of glyphosate a year as against 1.3 in the US. As for the other "side" effects, they include drastic health effects on distant plots affected by over spraying, the destruction of crops other than Soya, death of animals such as pigs and chickens, and defoliation,

As usual, the excuse will be that all this is due to improper application of weedicide other than Glyphosate, and to massive overuse. Anyone with experience in Australian agriculture will tell you that 2-4-5-T, otherwise known as "agent orange", and nearly every other chemical agent, has at times been misused by workers who were misinformed, or macho, or drunk, or simply ignorant. Many sheds in the bush contain drums of chemicals which are unlabelled or wrongly labelled. With Glyphosate these problems are compounded because the farmers using it are generally not only ignorant and often illiterate, but also under financial pressure. The same goes for governments; in Brazil GM Soya was banned until smuggling from neighbouring Argentina forced its legalisation.

As Benbrook predicted, weeds which are not affected by Glyphosate are spreading but, to make matters worse, agronomists expect weeds to develop glyphosate resistance in a foreseeable time. Changes in soil microbiology also seem to be happening. Because so much herbicide is sprayed, soil bacteria are declining and the soil is becoming inert, which inhibits the normal processes of decomposition. In some areas the dead vegetation has to be brushed off the surface. Slugs, snails and fungi are moving into the ecological vacuum left by the variation of the plant ecology.

There are wider effects. The change to a monoculture of Soya means that crop rotation is being abandoned. The market forces which have driven many of the traditional farmers off the land are notoriously fickle. Not only is the ensuing monoculture damaging the soil; in the absence of price regulation, an economy which grows like Topsy around Soya, leaves the entire country vulnerable.

An agricultural institute, previously in favour of GM soy, now expresses its concern. It criticises the "disorderly process of agricultural development" and that "the country's stock of natural resources will suffer a (possibly irreversible) degradation of both quantity and quality." Of Round-up Ready soy, Benbrook says "I don't think that its agriculture is sustainable for more than another couple of years."

Has this use of GM solved any of the world's food problems? Quite the reverse; it has led to the displacement of entire farming communities into already overcrowded cities; it has brought a huge tract of land close to economic ruin; it has damaged soil probably irreparably; it has left a trail of industrial injury and disease. But things are even worse. Most of the soy produced goes not to starving humans. It goes to feed cattle in inhuman conditions on US and Argentinean feedlots to produce the "marbled" beef beloved of US consumers. It will further fatten up a population two thirds of whom are already obscenely obese. It will also fatten the bank account of multinational companies such as Monsanto which have proved over and over again that their concern for humanity and for the planet is non-existent.

DIATRIBE 127 - Technological Imperialism - The Electronic Gunboat

The recorded history of humankind is largely the history of warfare of one kind or another. Apart from the history now being unearthed in archaeological digs and by laborious forensic speculation, we largely rely on what was written in books or on stone or clay tablets, which are in themselves technological artefacts. Writing in itself has been to this day largely a preserve of the rich, and writing has been instrumental in inventing history as well as recording it. I have little doubt that Julius Caesar's history of his wars, inflicted on Western schoolkids until recently, was as much an invention of his or his scribes as the official CNN record of the US incursions into whatever country they wish to demonise as their (and consequently the world's) latest enemy. I bet in Caesar's day there were "embedded" hacks, too, to toe the official line rather than be instructed to test their swords by falling on them. No-one should be surprised that Caesar never made a single reported mistake in his brilliant military career, as far as I remember.

However, given the proven ability of technologies of all sorts to amplify and magnify the power of hand and foot and later, by ever greater application of brain-power, to enable humans to achieve super-human tasks, you have to accept that individuals and groups with technology at their disposal, manage to impose their will and their ideology on others, whose abilities don't lie mainly in their technological prowess.

This has turned the US into the world's dominant super-power, and the rest of the world into apparent paupers. However, before joining the First World chorus of ooh-aah admirers, we need to take stock of the real situation. For all the supposed massive technological "advances", even the US is now worse off than 50 years ago. At least one reason for this is that the resources required for maintaining this supremacy are giving out. Another is that in order to keep the system afloat, there has to be growth. As profits are made, they have to be profitably invested, which means that the only alternative to growth is stagnation. This is well recognised by the gurus of the capitalist world, who put growth at the head of their requirements for what they curiously call economic health.

It doesn't take a wizard to see that unlimited growth and limited resources are conflicting demands. However, proponents of these economic strategies insist that it isn't necessary to use scarce resources to generate economic activity, and they point to service industries as "proof" of their theories. But even their own language shows that they are talking through their respective rear orifices. What does "value-adding" mean other than resource use as the very basis of activity?

Apart from economic manipulation, the deciding factor in this race for the bottom is undoubtedly technology. Not that new technology is a long-term assurance of economic success in a consumer society which relies as much on the gimmick as it does on innovation. It is all about perceptions. As I look out of my window at this moment, there is a house frame going up which well demonstrates that domestic timber-building technology is very much what it has been for centuries. To be sure, portable tools and new materials have cut the amount of site labour to perhaps one half of what it used to be, but as the cost of site labour was only around one third of total cost, this means around a one sixth total savings. And, as in previous centuries - hammers, nails and human skills are the main ingredients of the work – no computer within earshot. Any cost savings are more than made up for by the increased expectations – this building is a veritable palace compared to the modest home it replaces.

Let me get to the nub of my argument. This new house will not lead to any more happiness for its occupants than the previous structure. The chances are that the effort of maintaining it will lead to friction, which will be added to the other problems created by our lifestyles, . Even if young people move in, they will expect to move out after a short while. Within a few years the occupancy will be the average of a little over two persons. By the standards of more realistic communities, this is madness.

Yet it is this madness which we are applying to other civilisations. This is what I mean by the new imperialism. It is a mindset which judges people by their material possessions rather than their personal achievements. Our life in Australia is full of supposed group achievements, which we are supposed to celebrate. Yet most of these are felt to be empty, as indeed they are. It seems significant that we are still celebrating after nearly a century what was, by every measure, a military defeat at Gallipoli, whereas later wars don't seem to count.

However, in any case, few Australians now really celebrate anything other than the ridiculous triumphs of technology, mainly *imported* technology which they don't understand. We also celebrate successes in sport, as long as we can parade winners. With elections coming up, it is interesting to reflect that even our political system is imported, is not understood and in fact people don't want to understand it. Under the new technological imperialism, we no longer have to send in the gun-boats or the missionaries, because the deceptions of the culture of our masters are efficient messengers of power and wealth, and monetary success is taken as a meaningful indicator of happiness.

Who can be made responsible for the way technology dominates our lives? In a way, we ourselves are largely involved in the spreading of the New Imperialism ideology. From acquiring the latest electronic gimmick to indulging in international air travel, most of us in the so-called advanced countries have convinced ourselves that these incidentals are now essentials of life. Nor can all of this be denied. Would those of us who can afford dental repairs want to go back to the days before anaesthetics, or have our teeth removed with a well-aimed rock? Would we do without running water or electricity?

The best we can aim at is to try and understand what is gimmick and what is essential to sustainable life. We can also look at other people's lifestyles and make informed comparisons. Next time we read about Muslims beheading a captive, of course we will shudder at the barbarity of the act. But let us make sure we remember that, when a US pilot unleashes a rocket which separates a family into body parts and reduces their house to rubble, that the barbarity is no different; indeed it is exacerbated by the cowardice and alienation of this inhuman act. We need to be reminded of our technological prejudices, which are so deep-rooted that we not only are unaware of them, but we cannot even recognise them when we think about them.

DIATRIBE 128 - The Asbestos Catastrophe

Once again asbestos is in the news. Given the magnitude of the disaster, it should of course never have left the public spotlight. Ultimately, asbestos related diseases are likely to kill and maim more Australians than all modern wars, and vastly more than the terrorism beloved of politicians, but that doesn't mean it will register with the public media. The reason why asbestos is currently in the news more than ever before is simple – this time round it's all about MONEY.

Let's start at the beginning. Asbestos is described in newspaper articles of the 1940s as the wonder material of a thousand uses. This is nonsense. There are really only two attributes of asbestos that count: It is fibrous, and it is (or was) cheap. Asbestos as mined used to be sold in sheet form for heat and electrical insulation. You find it in old electric flat irons, in toasters, in heat banks, and in mats that allow you to reduce the heat from gas burners. Unless it is retained by metal grids it is mechanically so weak that it falls apart at the slightest provocation. When it does, it goes into what appears to be dust, but really this dust is made up of minute fibres with very sharp points. These are apparently one of the reasons why asbestos is so dangerous. Asbestos comes in three forms as a mineral: brown, blue and chrysotile. Despite what used to be put about, all forms are dangerous to health.

But let's get back to the uses of asbestos. Many construction materials have little or no tensile strength. Cement is typical of these. That's why when it is used as a building material; it is invariably mixed with other materials which bond to it and have tensile strength. For instance, concrete is a mixture of cement, sand and crushed stones of various sizes. None of these so-called aggregates which rely on the bond strengths of these fillers have substantial tensile strength; so for applications such as buildings, roads and towers, concrete is reinforced with steel rods. For thin-walled items like laundry sinks, cement is reinforced with chicken wire. For really thin sheets this can't be done, so you need a fibrous filler, preferably one where the fibres themselves can be stretched, even if only minutely.

There are many number of such materials. What makes asbestos so attractive is its low price. That's why it was used so widely throughout the 20th century, despite the fact that it was known to be a killer since the 1920s. The best proof of the wide availability of alternative materials is the way in which the exclusion of asbestos from the building industry has not led to major difficulties. After all, other properties of asbestos such as its flame resistance are not needed in buildings until they burn down, and then it is too late.

The stories of the conditions in the asbestos mine in Wittenoom in Western Australia, where most of the raw material came from, are horrifying. Workers have told of asbestos dust so thick that you could scarcely see your hand in front of your eyes and this with a material so dangerous that it killed the wives of workers whose only contact with the stuff was when they washed their husbands' overalls. Indeed, Ruth Berman, a contributor to 3CR's women's' programs, died precisely that way after her husband Clem had been long dead. Clem had been a worker with the SEC where asbestos was used in power-stations as lagging around steam pipes. These pipes run nearly red hot, and the cotton used to reinforce the asbestos disintegrates after a short time. This leaves asbestos dust lying everywhere around the plant; every worker cops it.

The Aftermath

The insidious nature of asbestos diseases lies in the fact that it rarely strikes within a short time after exposure. More likely, particularly with a cancer called mesothelioma, the disease will not occur until decades after exposure, as in the case of Ruth Berman. This allowed employers of asbestos workers and miners to claim that the illness was only rarely experienced and, statistically, was nothing to worry about. The chances are that nearly everybody who worked at Wittenoom will succumb to an asbestos-related disease. It will either be asbestosis, which produces a lingering and exceedingly painful death similar to "dusted miner's disease", or mesothelioma, which will kill within months of the first symptoms appearing. But these symptoms may not appear for half a normal person's lifetime. No wonder so many workers kidded themselves that they were resistant or even immune.

Who Cares?

Quite a few years ago, George Wragg, a union official from the Latrobe Valley, published a booklet which he named *The Asbestos Time Bomb* in which he accurately predicted the coming impact of the asbestos disaster. George has died since, mercifully not from asbestos disease. The book created a temporary stir which was soon forgotten.

Now it is on for young and old. Front page news, long articles in the financial pages, you name it. What has changed? Nothing for the victims; but this time round it is all about MONEY. So far, as people were diagnosed with the diseases one by one, they had to run individual court cases against their past employers which never came to a hearing, because companies invariably settled at the door of the court-room; each of these settlements contained secrecy clauses, which forbade publication of the terms of settlement. This pushed the magnitude of the disaster under the carpet. George had pointed out that the ultimate cost of compensation would amount to billions. A billion, in case you have forgotten, is a thousand millions, a fair bit of cash in anyone's

language. James Hardie, the company against whom almost all the present claims are directed, and future claims are likely to be directed, suddenly woke up to the fact that their liability was massive. They also discovered that the lies they told about these liabilities exposed them to personal law-suits.

So what do self-respecting corporate executives do in such a predicament? They scarper. There are various directions in which they can scarper. One of the favourites is to start a new company and close down the entity which carries the liability. Remember, for instance, Patricks, whose MUA workers found themselves with new bosses? In Hardie's case, they created the new entity in Holland, where Australia, just coincidentally, has no extradition treaty. There was also a new so-called Foundation with an endowment amounting to perhaps a sixth of their expected liabilities. "That's it" they said. What's more, they said that it was a condition of this non-settlement that their personal liabilities as directors should be declared null and void. Where you and I come from, such a demand would be called blackmail.

Now if we had a government interested in the welfare of workers, there are a large number of remedies that could be applied. But as we know from numerous cases where bosses defaulted on their debts to workers, these remedies are never applied, except where the defaulter happens to be a close relative of the Prime Minister.

There is another question. What about the Latrobe Valley workers? The answer is that they are no longer there. When Monash started the Brown Coal scheme, he made it clear that this was not the usual mining village to be abandoned when the coal was exhausted. They even put up a monument to him at Yallourn.. He made sure that Yallourn did not stand on a coal deposit worth exploiting. Except for a few glitches due to a class system introduced by the SEC Yallourn was a model town. Today it no longer exists because, said the present owners, they needed the coal under it. Would you believe, they never found a way to burn it once they got it.

George Wragg knew the answer, and so did the authorities who destroyed Yallourn. Yallourn was an asbestos time bomb. In time, whole streets in Yallourn would turn into cemeteries. By dispersing the town into the chill winds of the Latrobe Valley, the magnitude of the disaster would be covered up. None of this should have happened. Not in private industry, not in the state-owned Latrobe Valley. But then, workers' lives are cheap, at least until the financial cost runs into billions and cannot be avoided.

DIATRIBE 129 - The Longford Lessons

Last time we revisited the asbestos horror which has since blown up again. Unfortunately, as was mentioned at the time, this was not because of some belated concern with human suffering, but largely because of the financial implications to shareholders. When the Longford gas plant blew up, I used the occasion on this program to draw some, to me, obvious conclusions which could apply to any number of industrial situations. The subsequent inquiry proved all of these to be true, which was hardly surprising. Since then I have come across a book by an academic Dr. Andrew Hopkins of ANU who analysed the disaster largely from a legal background. Whether he had a left perspective to start with or whether his study led him to a lefty view is not vital; he certainly felt no sympathy for the ESSO bosses after studying the Longford facts. Anyone familiar with large-scale industry would have come to the same conclusions.

Been there, done that. The outfit I worked for during the last 30 years of my working life was not as large as ESSO and appears to have had one tier of management less than Exxon. Otherwise it wasn't dissimilar. The subsidiary company I worked for was attached to Head Office and my position gave me access to other subsidiaries and their problems. Exxon is in many ways similar.

Certain functions were vested in Head Office. Safety and quality were not amongst them; "Industrial Engineering" (in other words speed-up and cost-cutting) was. I would think Esso and Exxon would have similar priorities. The sum-total of these experiences led me to a jaundiced view of management, and technological management in particular

The Role Of Engineers

Where I differ from Andrew Hopkins is that he makes much of the fact that on the fatal day of the disaster there were no engineers available at Longford. I have no faith in the training of the sort of bureaucratic engineer who would occupy a managerial position in ESSO.

Take the matter of low temperature embrittlement, the direct cause of the failure of the vessel which split and allowed massive amounts of gas to escape and catch fire. The evidence showed that the staff in the plant had not been made aware of the danger of this situation. Having come up through the ranks, I am totally aware of low temperature embrittlement. Mill operators in the rubber industry know they have to pre-warm the rolls on cold mornings to prevent them from cracking. Not long before the Longford disaster, the King Street Bridge cracked on a cold morning, due to cold embrittlement, when the first heavy truck rumbled over it (there is another story for you!) Would the presence of engineers at Longford have avoided the explosion that day? I doubt it.

Proper safe procedure would have required a lengthy slow warm up after depressurisation. Clearly, production executives would not have been likely to agree to a shut-down of this magnitude unless they were aware of the disaster potential, which they evidently weren't. Further, head-office engineers wouldn't even have understood the situation.

Also, as shown in the Columbia shuttle disaster, expertise at an informed level is often ignored when it is politically unpalatable. A similar situation is described by Neville Shute in his book *Slide Rule*, reporting the R101 dirigible disaster. A totally new airship was taken out on an extended maiden flight without the necessary prior tests, against the protests of the engineers who could see that to run an initial proving flight with a full complement of passengers and over a long distance was utter madness. In the event, the airship got as far as Paris on its trip to India before it crashed with heavy loss of life. While for some reason the burning of the German airship Hindenburg in New York finished up on TV screens with monotonous regularity, few people have ever heard of the R101, which carries many more lessons for a technological society.

Exxon engineers might have listened, half a century ago, when engineers possibly came up through the ranks and identified with their technical role. But then few transnational entities like Exxon existed 50-odd years ago, when utilities were largely publicly owned. Such truly professional engineers are now weeded from the system. I bet that in a corporate structure like Esso and even more so, Exxon, engineers are university spawned and most likely have dual qualifications in engineering as well as management; their attitude would put management first. The disaster showed that they were lousy as managers; they were probably even worse as engineers. Incidentally, the Australian shop-floor vernacular translates the MBA (Master of Business Administration) as Master of Bugger-All.

And why do I accuse the Esso Engineers of incompetence and ignorance? The evidence to the inquiry was that the Longford plant was constantly running outside its limits, with alarms going off frequently. Anyone walking past the alarm would cancel it without attempting to investigate the cause. Clearly, then, it was not the absence of engineers which caused the disaster, but the failure of engineering practice.

Hopkins' book rightly views the events of Longford from a sociological rather than a technical point of view. I suggest that a class analysis is actually the only means of gaining a deeper understanding of almost all such occurrences. This was revealed in its most crass form in the early attempts to blame the incredibly courageous operators for the disaster. I suggest that class dominates all aspects of the disaster, as it dominates the production relationship.

Actually, a plant like Longford does not require much formal engineering training to operate. It does require lots of experience in a very wide range of disciplines, ranging from plumbing skills to electronics, from pneumatics to hydraulics. These are however not design skills. Conversely, it is difficult for an academic institution to acquire the instructional skills required to be passed onto operators of multi-disciplinary technologies. In short, the way to learn these skills is in a variety of hands-on jobs augmented by a continuing interest in engineering science. The proper way to learn them is an apprenticeship or cadetship. However, this requires the basic skills to be present in the enterprise. There seems plenty of evidence that such expertise never existed at Longford at levels where it mattered: decision-making levels on the shop-floor.

Actually, the inquiry showed not only crass managerial ignorance, but a degree of malevolent stupidity which upset even the lawyers on the inquiry panel. The lawyers hired by the idiot Exxon management actually tried to blame the heroic workers who risked their lives to deal with the situation. If that does not show class prejudice, I don't know what it needs to convince some people. It certainly convinced the writer of the book *Lessons from Longford*.

DIATRIBE 130 - How Not To Solve The Greenhouse Crisis

After having for decades sat on their hands regarding action on the by now obvious threat from global warming, our governments of various shades of economic rationalism have now decided that it is time they should be seen to be at least aware of the problem.

What is the problem? Not floods and droughts, as you might assume. The problem is that the drive for alternative sources of energy is perceived to be threatening the future of the fossil fuel industry, particularly in Australia. And you have to hand it to them; the solution they have thought up is absolutely brilliant. It will not reduce the use of fossil fuels, but will actually in the short term considerably increase it, and thereby increase the profits of the industry. It is called geo-sequestration, and consists of pushing the main greenhouse gas, CO₂ (or to give it its full name - carbon dioxide), back into the earth, but not into the places where these fossil fuels actually came from.

But let's start at the beginning. Fire is a chemical process which combines certain elements, of which one is Oxygen, into other compounds which are largely gases at room temperature. The earth is in a delicate balance between heat received from the sun and heat radiated out into space. This balance is affected by the blanket of

gas that keeps the heat of the earth from escaping into space. Greenhouse gases are some of the materials this blanket is made of. The carbon dioxide in the atmosphere is one of materials which make the atmosphere a better blanket. It is a heavy gas, some 13 times heavier than air, and the only reason it stays in the air is because there is so little of it that it is in a solution, like salt is in solution in seawater.

Fire is not the only way to produce heat. All mechanical processes produce heat; so do some chemical processes, and nuclear reactions. Humanity needs heat to survive; it is generated in our bodies by bio-chemical processes which are miraculously efficient. All life on earth depends on heat, but too much of it is just as harmful to us as too little. Hairless humanity can only survive in cold climates because we developed clothing or housing to replace this missing hair. The other obvious way is to burn fuel to keep us in the comfort to which we have been accustomed by our origins.

As is usual in a profligate class system, it doesn't stop there. Heat is wasted in vast quantities by practices which relate only remotely to human comfort. Volumes have been written on how we can alter our personal consumption habits to use less heat, most of them sensible. But direct energy consumption by individuals amounts to only less than a quarter of the total used by societies such as ours. The rest is used by commercial, industrial and other activities.

The other misunderstanding is that, in our blinkered view, energy consumption equals electricity consumption. Not so. In our type of situation, only about one fifth of energy consumption is in the form of electricity. But given our preferred way of producing electricity by burning dirty and inefficient brown coal in huge quantities, about half of our greenhouse gases are produced in the generation of electric power.

Unfortunately, while the size of the problem is becoming more and more apparent, with glaciers melting, climate patterns changing and land being devastated by floods and hurricanes, the complexity of the generation of greenhouse gases is not only badly understood but deliberately distorted by a whole raft of vested interests. There are no simple solutions. Of course, those with economic stakes in coal and oil will always tell us that whatever alternatives to fossil fuel burning are put forward "are not the answer". This argument is applied by the fossil fuel lobby to everything from bicycles, wind, wave and even geothermal energy sources, although all of these are already in widespread use, and are often helping to deal with energy generation at a local level without having to build distribution systems which are costly and wasteful.

So, just how do the fossil fuel barons propose to deal with the crisis? One of the answers they have, as I said earlier, is geosequestration. You simply force the carbon dioxide back under the ground. Did I say simply? Let's assume it can really be done and see what it would involve:

First catch your CO₂. What comes out of a smoke-stack is not just CO₂. It's a mixture of gases. A lot is water vapour. Separating out the CO₂ is not simple. In fact, those pushing this technology say that they need to build an entirely new power station to allow them to extract the CO₂. Yes, that's right. We need to scrap all our present power stations and build new ones. And where do we get the energy for the new ones? All that concrete? Fossil fuels of course.

The bonanza doesn't stop there. The process of burying the CO₂ involves adding a great deal of energy to the liquefied gas which is forced into the ground. Overall, energy produced this way is predicted to be 15% less efficient. I am sorry to sound so vague about all this, but this only reflects the wooliness of the geosequestration proposal. Not surprisingly, while the fossil fuel and nuclear power lobbies always pick holes in alternative energy proposals, they are always upbeat about their own, no matter how hare-brained.

Of course, we can raise many questions about the geo-sequestration proposals. While there are small pilot schemes to prove the principle, no-one has done it on the huge scale at which CO₂ would have to be buried to make a dent in our current production of greenhouse gases. We are talking about cubic kilometres of the stuff. Nor would we be able to assess the economics of the deal, which would have to be paid for out of taxes, and which has no positive economic returns other than generating employment of a peculiar kind, employment which in itself is energy intensive.

Besides, if we were to spend a lot of effort on every such scheme we would do precisely what the fossil fuel barons want us to do. We would invest this crazy proposal with a realism which that industry denies to all real alternative energy proposals.

One word of warning - CO₂ is not poisonous; it is the gas in beer, Champagne and soft drinks. Water is not poisonous either, but it isn't healthy when you drown in it. And, as I can tell you from experience, drowning in CO₂ is no more pleasant than drowning in water. This was the fate inflicted on the inhabitants of lake valleys in Africa a few years ago, when CO₂ at the bottom of these lakes burst and came to the surface. It was what I experienced when I put my head into a box partly full of Dry Ice which is just CO₂ in frozen form.

It is no coincidence that, together with this proposal, nuclear power is again being pushed as a "solution" to energy over-use. There remains one question, however. Why is the saving of energy, which by definition saves money, actually considered to be destructive of our economy? The answer, of course, lies in the insanity of our system rather than in the development of yet further technologies with their inevitable adverse side-effects.

DIATRIBE 131 - The Technology Of Machine Politics

From way back, there were attempts to make monarchs share some of the power they had amassed as the state apparatus had increased in size over centuries of conquests. The current form of the British parliamentary system was the result of much agitation during the 19th century particularly by Chartists who were convinced that the then parliament could be reformed into an institution which represented the workers. They proposed a six point charter which included universal franchise (males only) and payment for MPs. Needless to say even these cosmetic changes which are now taken for granted, were fiercely resisted by the then ruling class even to the extent of shooting down demonstrators and transporting them to Australia. One interesting sidelight is the way in which early parliaments saw forcing the King to consult parliament before starting wars as one of their major purposes, a power which parliament has long since abandoned.

Once the parliamentary institution was established it was important that its pretences should be maintained, one of which is the notion of one vote – one value. Of course the fiction that a millionaire's vote is equal to that of a lowly labourer is easily shown up for the nonsense it is by looking at who occupies the positions of importance in government, particularly in the US. Indeed the fiction of equality can itself be seen as a mechanism for ensuring the ongoing hegemony of existing power-structures. This is maintained through the easier manipulation of apathetic majorities as we have just witnessed in the recent federal election. The domination of the media is one such. The US has had other, more brutal, methods of ensuring that the elections produce the “right” results. For a couple of centuries after independence Negroes were not barred from elections; they were merely lynched if they tried to register, particularly in the South. The only change came after World War II, brought about by the difficulty of segregating soldiers and particularly sailors under battle conditions. As before, presidents are still elected only from the filthy rich.

However this selection process is not considered effective enough. And even though in time, the area of decision-making covered by parliament was frittered away and handed over to corporate entities, the US in particular keeps on playing around with the voting process itself in a way which inspires cynicism rather than confidence; even in those who accept the doubtful assumption that voting once every few years for someone you know only through media hype is the ultimate embodiment of democracy. Overt brutality in elections is no longer considered as acceptable as it used to be. Electoral fraud by machine is far less obvious. What is so difficult about the mechanism of casting and counting votes? Nothing, in our system, from our experience.

An official appointed by the Electoral Office (generally a school teacher), initials each ballot paper and crosses the voter's name off the electoral list as the voter enters the polling station. He/she then hands the ballot paper to the voter to fill in, in a booth provided. Once the ballot boxes containing the completed papers are opened on the counting tables after the close of counting, electoral office staff sort the ballot papers into piles according to the Number One votes cast for each candidate. If no candidate has an absolute majority, the pile of votes for the least successful candidate is redistributed according to the Number 2 choice on their paper, and a recount is made. If this doesn't result in an absolute majority of the total vote count, the process is repeated until there is such a majority. Candidates are allowed to appoint scrutineers to witness the counting process, but the scrutineers are not allowed to touch the ballot papers. If they feel there is an irregularity they can protest to the chief counting official.

Of course, you and I can see that this process is not entirely tamper-proof, but it is sufficiently transparent to engender confidence. If the outcome of the ballot is close a recount can be made. As elections are few and far between, it seems pointless to automate or mechanise the process, particularly these days when there are frequent changes in database technology. That's not how things were seen in the US. Given the number of machines involved, there was a rush to sell expensive technology to the government to perform the vote-casting process itself. The first obvious choice was punch-card technology which was then the basis of statistical data handling. It had been around since 1802 as part of the Jacquard loom. The machines looked for all the world like the old one-armed bandit and there was a similar element of chance in using them.

I assume that the idea was to sell these machines on their ability to count and read cards at the rate of many thousands an hour; still about ten thousand times slower than my current desktop computer. This speed of reading data into the machines would be of little significance in elections, which are a protracted process with the final votes dribbling in over days if not weeks. The punches on these machines must have been very primitive, because some of the imprints of the punches failed to penetrate the card, leaving an indentation but no hole (the bit that forms the hole is called a chad). This means the optical card reader, seeing no light anywhere, simply discards the vote. What seems to have made matters worse, is the tendency, at least in some states, to have used the process to run referenda on a number of questions as part of the voting.

This left the officials in a quandary. Most of the rejected cards showed sufficient signs of indentation to make the voters' intention crystal clear. Disputes over whether this check should be done and who should do it, led to the result in Florida in 2000 ultimately being left to judges who gave the “victory” to George W. with his entourage of war-mongers not just in Florida, but in the whole of the US. Whether you see this fiasco as deliberate depends upon where you come from. Certainly there were no technical grounds for it. Every electrician's toolkit contains

crimping tools which do not allow opening of the jaws until the crimp operation is complete. A simple and cheap mechanism of this type in the punch would have prevented the punching of non-holes. A simple reader responding to what indentations there were could have dealt with the half-formed holes. So, for my money, I would say that the fiasco was deliberate, given the result. In addition to the chad disaster, in the vital state of Florida alone thousands of registration papers were lost and further thousands of eligible voters were prevented from registering due to wrong or outdated records.

So, what about this time round? Instead of hole punches they are employing touch-screen technology. This means that there will be no trace of your vote once it has registered into the computer's memory. No recount is possible. Typically, this exercise in the state of Georgia, (with a total population of six-and-a-half millions and a voting population of perhaps two and a half millions), where it was installed to elect a governor and state senators in 2002, cost taxpayers a cool \$US 54 million and left voters with a profound feeling of having been diddled when the results were grossly different from reliable polls. Give me "laborious" hand counting every time, particularly when the machine count costs about twenty US dollars per voter per election..

Whatever you think of the value of this form of "democracy", it is clear that, to be acceptable, fairness must not only rule the process, but it must also *be seen* to rule the process. Leaving much of it to machines under the control of officials who in the US are party political appointees, is certainly not the way to impress the multitude. It is however a very good way to generate all-round cynicism. Perhaps that is what the state needs. It puts a new slant on the meaning of "machine politics".

Could it happen here? Perhaps not in the same way. However, during the Cold War, the personal details of people who acted as scrutineers for Communist candidates went straight to ASIO. If ASIO snoopers didn't already have a dossier on them, one was started immediately. I found an instance where the snoops couldn't correlate a scrutineers name with public records and spent many hours chasing his identity. So much for the secrecy of the ballot in Australia.

Add to this the way we and our US brethren are restricted , in practice, to vote for either branch of the Business Party (Naom Chomsky's description), as well as being at the mercy of a totally one-eyed media, and you cannot but feel sorry for the Chartists and suffragettes who sacrificed their health and sometimes their lives to achieve their participation in this tainted process.

DIATRIBE 132 - A Sad Outlook For Humanity

The tragedy of youth suicide is rightly being highlighted. All sorts of ridiculous reasons are being paraded: the latest nonsensical suggestion is a claim that it is all due to cannabis. However, even if you accepted this, you would still have to ask why young people, with their lives before them, should see that future in terms of hallucinogens and death.

Those of us who were around a few decades ago had the best of education, even if we didn't know it at the time. We were actually privileged to be able to see skilled crafts-people at work. As a boy, I remember passing a basement window on my way to school, where I could watch a glassworker who had a little machine for manufacturing test-tubes, cutting lengths of glass tubing which were then rotated over a burner, which allowed gravity to close one end, and another simple device for flaring the other end.. I still remember the little hot-air engine which turned the contraption and was also operated by a bunsen burner. Incidentally, hot air engines are now again coming into vogue in space technology, but nowadays kids besotted with motor-cars would hardly be aware of steam, hot air, or other means of making things go round. Mind you, to-day's toddlers are familiar with Thomas the Tank Engine as immortalised by the Rev. Ardrey a long time ago, although they haven't any notion of what Thomas would have done for a living when he was around and roamed the rail system. Worse still, they would rarely be interested.

This disinterest is a very deliberate imposition. Even 40-odd years ago I remember a General Motors flunkey telling me that the problem with motor-car buyers was that too many of them still wanted to look under the bonnet, when they should just be admiring the upholstery. To-day's customers rarely want to look under the bonnet to view what looks like a plumber's nightmare. From early life, people are being conditioned to believe that modern technology is beyond their understanding.

And that is why I think that for to-day's kids life is pretty dull. Not because our technology is uninteresting (that too), but because life should be a voyage of discovery. For hunter-gatherers every stone, plant and animal was a new experience throughout life. Every experience, in turn, was part of a learning process adding to the total store of knowledge, and all such knowledge aided survival.

If this goes for the experiences we gain in nature, it is surely even more important for the millions of artefacts which surround us. Many of these are a mixture of skill and knowledge. Remember the old library classification of "arts", divided into "fine arts" and "useful arts". The word "artefact" itself implies a unity of dexterity and

knowledge. The intrinsic value of such articles is nowadays submerged under money values which have little or no connection with the human effort which goes into the making of the item.

Living in the industrial society, we should surely strive to gain at least an elementary understanding of its processes. This understanding is denied by the organisation of the production process, as well as by deliberate obfuscation. Take the computer program which I am using to write this. Every time I press a key to generate a character in memory and on the screen the machine goes through dozens if not hundreds of steps invisible to me. Fair enough, I don't need to know the functioning of the machine to type my text; but the Microsoft organisation which sold the program has taken special steps to conceal its workings of the program, and reduced me to a slave of their product. What is more, there is nothing to stop them from changing the program, as they have done many times before, and to make what I have so far found quite satisfactory, obsolete and unworkable in respect to their other software.

What is relevant here is that most young people, instead of screaming blue murder as I am doing, pride themselves in buying the upgrade and learning the new details of the program although, these relate to aspects which they will never use. The only benefit they gain from this exercise is the ability to boast about their acquisition and about the very transient skill they have achieved. They, and their schools, will refer to this as "computer skills" although it should be called "Microsoft familiarisation".

This is a far cry from the early days of desktop computing when learners were given a bare machine and asked to write simple programs in the BASIC language. At least that way they learned some of what a computer could actually do, rather than being seen as a toy which allowed you to play games.

What's all this got to do with youth suicide? Nowadays we see young children employed in the fields in so-called primitive societies, and we quite rightly call it exploitation. Yet from time immemorial creatures have been expected to contribute to their upkeep. Where is the difference between contribution and exploitation? Surely it lies in the nature of the work we are performing. If we see the work as a continuing learning experience the contribution is not one-sided; the one-sidedness enters into it when we start industrial mass-production. Under these conditions, work is deliberately degraded so "it can be done by children". This means that the learning component is deliberately excluded. When children were made to sweep chimneys it was not to teach them a trade, but because adults were too large to fit. When they were made to pick fluff from between the moving parts of a carpet loom, it was because they fitted in the space and were nimble. When kids were forced to pick over heaps of slag for coal, they were not learning a trade, although some became miners.

When kids go out alongside adults into the fields, more often than not the amount of work they do is very small. Usually they are not forced to do it. Kids are quite naturally driven by curiosity to imitate what adults do. It isn't just kids; even your domestic animals take an interest in what you are doing. We all learn by imitation and in varying degrees we all want to learn.

If we are not given the opportunity to learn skills that allow us to participate meaningfully and usefully in the life of the community, life is very dull indeed. Yet this dependence on employers is precisely what we are inflicting on to-day's young in various ways. Firstly, we make it clear to them that their labour is of no value unless it results in financial returns to their employers. Secondly, society tries to persuade them that whatever they do, they will shortly be "displaced by a computer". We also provide role-models such as managers and sales-people whose skills are so nebulous that they seem unattainable. We also downgrade the skills they already have. This goes for women workers, in particular.

This feeling of worthlessness on the part of workers, particularly unemployed workers, is of course a great help for bosses because it allows them to maximise the rate of exploitation. On the other hand, it must surely be one of the major causes of youth drug-taking and alcoholism, and ultimately lead to youth suicide. Nor is this a new phenomenon. At the end of the 19th century, the French sociologist Émile Durkheim analysed suicide and came to the conclusion that it was largely due to alienation, a feeling of dissociation from society. This explained, for instance, why in modern societies suicides decreased in times of war where life suddenly seemed to assume a newfound purpose.

It is significant, I think, that Durkheim's studies are rarely cited by the pundits of present-day youth suicide. Once again, it isn't a case of not knowing, but of not wanting to know when the truth is unpalatable and reflects badly on the society it represents.

The more people feel they are at the mercy of computers which will make them redundant or have already made them redundant, the more they are likely to look for consumerist fantasies, drugs and self-harm. In fact, the notion that human beings are becoming obsolete is a pernicious lie.

DIATRIBE 133 - An Act Of God?

The Boxing Day Tsunami once again showed how relatively powerless humans are in the face of natural disasters. That said, it also shows how privately owned modern technology does very little in averting the worst

impacts of such disasters. A tsunami occurs as the result of an undersea earthquake. Earthquakes represent the sudden realignment of the earth's tectonic plates, the surfaces on which continents float. Usually, such shifts occur relatively gradually, at the rate of a few millimetres per year. However, the forces created by these movements are almost unlimited by human standards. It is these forces which are still lifting the Himalayan mountain range, for instance. These forces activate volcanoes which spew cubic kilometres of rocks hundreds of meters into the air during eruptions. Luckily, such upheavals are rare.

Rare as they are, they are inevitable. When they occur under water, the result is a tsunami, a wave which contains all the energy which was required in the first place to lift hundreds of millions of tons of water by the vertical displacement of the disruption. At sea, where the earthquake occurs, this results in a minor swell which ships at sea may not even notice because it is super-imposed on other wave-motions caused by wind. These, as was shown in ocean yacht races around Australia, may assume frightening magnitudes and cause deaths among experienced seafarers but are as nothing compared to the sort of tsunami which struck on Boxing Day 2004.

The real damage in a tsunami occurs when the wave hits a beach, particularly a gently sloping beach. As I explained, it is the volume of displaced water which contains the energy. Consequently, as the water gets shallower, the same volume stretches further inward and the velocity of the water flow multiplies. Your high school physics will tell you that the potential energy of the wave gets turned into kinetic energy, just as the potential energy of a car stationary at the top of a hill turns into kinetic energy when you allow it to gather speed rolling down that hill.

Somehow, this energy has to be absorbed or reflected. On a beach which where there are no obstacles little damage is done although if the beach is smooth much of the energy is still left as the water returns. That may be one of the reasons why there is often a second onslaught in a major tsunami. The other is that as in other earthquakes there are aftershocks.

As with other measurements, earthquake descriptors are often sadly deficient. A US seismologist by name of Richter originated a scale which is not only hard to understand but used in a way which is downright misleading as it doesn't take into account the all-important direction of the earth's movement during the 'quake. Even without that, people other than scientists don't understand that with this logarithmic scale every point increase on the scale multiplies the intensity of the 'quake by a factor of around 32. And while the intensity is often referred to as being on an "open ended" scale - which is the norm with natural events - other references talk about a scale of 1-10, which is meaningless. And, might I ask, why not just call them "7 Richters" instead of referring to "7 on the open-ended Richter scale"? It is good enough for that other unit of vibration, the decibel, which is also on a logarithmic scale and refers to the loudness of a sound.

Scientists the world over have spent enormous amounts of labour trying to find ways of predicting earthquakes and volcanic eruptions. For countries like Japan which are in earthquake zones such predictions would save enormous loss of life. Earthquakes occur regularly in certain areas such as the edges of tectonic plates where these plates grind together. The important thing would be to know where the next tremor is going to occur or the next volcano is going to erupt. The impact on human habitation could then be predicted. Unfortunately, no such methods of predictions have so far been developed, despite the improvements in instruments which have taken place. Earth movements in seismic events occur kilometres below the surface and we know less about what goes on in there than we know about what goes on below the surface of the sun.

However, just because we cannot predict these events doesn't mean we cannot minimise or mitigate their impact on human society. As human civilisations developed, there was a tendency for us to concentrate in ever larger units of habitation. Hamlets, villages, towns, cities and metropolises have led to accumulations of humans which to-day allow one or other mega-city to have as many inhabitants as the whole of the globe had ten thousand years ago. This makes the number of people affected by any cosmic event appear vastly larger than those of the past if it happens in a populated area. A typical example of this is the meteor strike of 1907 which devastated an area 50km in diameter, flattening every tree. No-one found out about it until years later simply because the area was uninhabited. This simply couldn't happen nowadays. The part of Siberia where the meteor exploded is not densely populated even to-day, but it is certainly not uninhabited.

Nevertheless, the death toll from the Boxing Day tsunami could have been vastly less than it turned out to be. The furthest inland the wave reached was around 5 km. The average was much less than that. In short, at the most, people were about two hours away from safety at walking pace. A look at the map of the area of the tsunami shows that Phuket, where tourists were swept away in droves, is around 1000 km from the epicentre of the quake which triggered the tsunami. There was plenty of time to clear the beaches had there been an early warning. Indeed, the Prime Minister Thailand admitted that they did have such a warning, but it wasn't passed on to the population because it was felt that it might have adversely affected tourism in the area.

In another report, wen authorities penetrated to some of the more remote communities where they expected massive devastation; there was hardly any loss of life. They found this astounding. Yet when you look at the pictures of the areas where devastation was complete, you can see that most of the debris consists of the remains of human habitation and human artefacts. In many cases impact with this debris killed and maimed the

victims of the massive wave, according to those involved. One assumes that in areas where people didn't put up heavy and rigid structures, the tsunami's impact was far lower than in tourist areas.

The official reaction to the disaster was pretty predictable. No-one is to blame. An early warning system would cost a mint and was therefore almost unthinkable. And, an unspoken thought – it hasn't happened these last 50 years, why worry about it now? The answer is that in the nature of earthquakes it is obvious that the greater the time interval between them, the worse they will get, as the forces within the earth build up and their ultimate release will assume ever more catastrophic proportions.

The greatest nonsense is the claim that we need to build up a totally separate warning system to alert populations when a disaster is imminent. We already have such a system – it is called the radio. When the 'quake struck, people were already shown on the beach listening to their radios; particularly foreign tourists who treat the radio as an essential item of beach equipment. Nor is this idea novel; my friend who worked for the ABC in Darwin tells me that broadcasting cyclone warnings is a routine activity in the north whenever a cyclonic depression shows up on the weather radar. It is appalling that in this instance it is once again the radio amateurs providing the communications.

There is no doubt that with this sort of catastrophe early warnings can be given and are effective. Commentators expressed surprise that within metres of the zones of destruction on the beach the landscape was pristine. Isn't that just what one would expect? On the other hand, being hit by a wave at hundreds of kilometres per hour is like being hit by a brick wall, something most people also know when they have accidentally belly-flopped from a diving board. "Primitive" people have always instructed their kids to run whenever the ocean shows abnormal signs; it is left to the "sophisticates" to satisfy their curiosity. We need to insist that the money collected for relief goes to ensure the health of coastal and island residents and that our technological infrastructure is primarily used for the preservation of life rather than for commercial frivolity.

DIATRIBE 134 - Let The Buyer Beware?

Life must have been simple, at least for the affluent, in the days of the butcher, the baker and the candle-stick maker. They rarely tried to cheat you because they depended on your continuing custom. Not so in the present. As they keep on telling us, we live in the age of consumer choice. If only!

Of course, given half a chance, those in power would want to do you down. We all assume that every used-car merchant would only tell you the truth under extreme pressure and that the same goes for real estate agents. We like to buy used cars from private individuals because we know that they are honest individuals, despite the warning example of our work-mate who buys new cars and stores the tyres in his garage after having run 20,000 km and then, when he sells the car replaces the tyres, winds the odometer back to 20,000km. He also runs a fake service record. All this, to convince the future buyer that the car has genuinely covered a mere 20,000 km and was driven by the proverbial little old lady. I assure you there are such people.

Indeed, these are long established scams. The slogan "Let the buyer beware" dates back, I believe, to ancient Roman days. The ancient Romans were also responsible for the saying "mundus vult decipi" – the world wants to be deceived – as a cheap excuse for ripping people off in a commercialised world. So why should this somehow be different under the reign of the most highly organised predators 2000 years later?

Of course, it isn't fundamentally different. It is just that the consumer society offers a greater range of rip-off opportunities and that the industries doing the ripping-off are more highly organised. Let's just take a few examples. We have a number of government-maintained departments of weights and measures to ensure that when you buy a kilo of flour or a kilo of spuds you are actually paying for the quantity indicated by the scale and not a few cents more due to a doctored scale. If this gives you a warm inner glow, remember that the actual price per kilo is set by the super-market at whatever level they like. With tens of thousands of items on supermarket shelves, how many items' prices can you keep in your head?

This example is not the major way the consumer is being rooked; it is just one of the ways beyond consumer control. And it is certainly being helped by technology. Nowadays, if management wants to change prices they no longer have to alter lots of tickets on packages; a single key press in the Australian head-office will do it for all branches, no matter where those branches may be. This key press will reset all the point-of-sale registers, print the shelf labels and perform other accounting functions.

If a chain wants to run a price war on a small grocer who still survives, the super-market management can instantly work out how much they are likely to lose by putting a staples like sugar on "Special" to undercut the local shopkeeper who then quite often has to get his or her supplies from the supermarket because buying from the "wholesaler" is actually dearer. Added to this is the clout supermarkets have with suppliers which allows them to get their supplies cheaper in the first place.

These crude methods coupled with technologies that enable them have already ensured that some 75-80% of retail sales are transacted through the major grocery chains. What's more, their range now includes liquor,

greengroceries, meat, flowers, you name it. Without computers it would be impracticable to handle such a huge range of goods.

So far I have only talked about ways in which large corporations bypass competition. We also need to look at the way products, particularly technological products, are designed to deliberately fool consumers who don't know any better, and the mystique with which sales personnel surround products to fool us. For instance, in one of the numerous magazines which daily papers force you to take along with their copy pages, somebody recently had an article about finding a huntsman spider in their car and removing it. Telling a garage mechanic about it, the mechanic asked whether the driver "got the other one". He explained that huntsman spiders always come in pairs, and that the car would need fumigation.

Most of us have found the odd huntsman in our car after a trip through timber, and felt a shock when it crawled across the windscreen, even if we are not normally paranoid about the harmless huntsman spider. But the salesman/mechanic was wrong on two counts: Firstly, huntsman spiders don't necessarily occur in pairs, and secondly fumigation doesn't necessarily kill them. But his spiel was certainly a good way to sell fumigation, a process which is expensive and leaves you without the use of your car for a couple of days.

A good way of impressing customers is the use of meaningless model numbers. If you want, say, a simple hose clip, getting it in a cardboard box with a ten-figure part number printed on it is ever so much more impressive than fishing one out of an unlabelled box of dozens. You laugh about it if it is a hose clip costing a few cents; but when a washing-machine pump fails for the want of a simple rubber seal costing cents which forces you to replace the entire pump at the cost of \$80 as well as consigning an otherwise good item into land-fill it goes beyond the proverbial joke.

However, this is the nature of the throw-away society. Every hard-rubbish collection day you find perfectly good appliances on the footpath, discarded for want of some minor repair or simply because the owner has been persuaded that it is "obsolete" although it is still perfectly capable of carrying out the function it was designed for.

Ultimately we have a whole range of goods deliberately designed to become obsolete. This is called planned obsolescence, and pervades the realm of motor-cars, computers and any number of technological items. It is based on the doubtful assumption that next year's model must be better, particularly if it also happens to be more expensive. Our environment is being destroyed by major items discarded into so-called rubbish.

In most of these cases we can't say that it is the buyer's fault, The buyer, even if he or she were to spend half their life to become familiar with the goods or product, could never develop the knowledge which would allow them to make an informed choice. By the time they did, the product would already have been changed so that they would have to start all over again. Take a nowadays very typical case – the mobile phone and its various ways of marketing it. Can you make a comparison between the cost of any of half-a-dozen "plans" that are on offer, bearing in mind that another two at least will be added every six months or so?

While we can't feel sorry about affluent consumers being deprived of some of their wealth, there is another more serious aspect. Research has shown that disadvantaged people on average pay between 20% and 30% more than wealthy and therefore clued up people. This is because more of the poor buy goods on time-payment, and because the affluent can chase a better deal through discounts. They also have better access to information. The answer is simple. Don't buy goods unless you need them, don't discard goods unless they no longer fulfil their function and never, ever read ads in glossy magazines.

DIATRIBE 135 - The Mass Murder Of Dresden

Last time on this session, we commemorated the horror of Auschwitz and I pointed out that in my opinion there were people in any country that, if given a chance and the means to do so, would be equally callous in ordering death for enormous numbers of fellow human beings. Indeed, there are lots of instances in recorded history of such murders and of official gloating over the outcomes. The only difference lies in the way modern technology allows the criminals who order these murders to enlarge the scale of the horror. This ultimately led to the nuclear destruction of Hiroshima and Nagasaki.

Apart from allowing ever wider destruction of life and habitation, technology allows the murderers to distance themselves from their crimes to an increasing degree. This culminates in the present-day push-button warfare and the use of depleted uranium shells which make huge areas uninhabitable or subject their inhabitants to the risk of slow and painful death as the bible promises, into the third and fourth generation. And, unlike the biblical promise of hitting the guilty and innocent alike, our technology is specifically geared to single out the innocent who are incapable of defending themselves.

At the same time as the UK military establishment was desperately hunting for excuses not to deal with the horrors of the concentration camps, a huge experiment was being planned to discover how much damage could be done by setting fire to a wooden city. Of course, such an experiment was totally unnecessary; in 1939 much of Victoria went up in a horrific conflagration under conditions not very different from those

DIATRIBE 136 - Titanic Myths

I recently came across a book first published in 1995, but since updated and published in paperback (*The Riddle of the Titanic*, by Robin Gardiner and Dan van der Vat) which makes my point that a mixture of technology and capitalist business organisation is an evil brew in which the level of evil is determined by the amount of money involved.

The tale of the *Titanic* has been rehashed so often that it would take a minor publication just to list the books and films that have been based on it. Indeed, the recent *Titanic* film alone cost vastly more than the original ship. However, before I get into the nitty gritty of my arguments, here is a point worth remembering: The *Titanic* disaster was by no means the worst shipping failure in terms of lives lost, either before or since; it was not even the only shipping disaster due to a collision with an ice-berg. Probably the most outstanding feature of the disaster was the contrast between the ballyhoo of the shipping company, the nonsense of the “unsinkable” ship, and the fact that out of the total of thousands of passengers and crew less than half were saved, even though radio communications were available, the sea, particularly in the central Atlantic where the sinking occurred, was crowded with ships, but first and foremost because of the prominence of some of the people involved in the drama.

One of the authors of the *riddle* book has a pet theory which the book takes as the central theme – was there a switch between the identities of the *Titanic* and her sister ship, the *Olympic* which would have meant that the ill-fated voyage was not a maiden voyage but just one more Atlantic crossing of a well-trying ocean liner. This puzzle, which was not resolved by the finding of the wreck at the bottom of the ocean, seems to me to be irrelevant. What is more relevant are the details of the stuff-ups which characterised the disaster, and which are typical of capitalist organisation rather than being an exception.

Let me take one or two of the most glaring technical problems. The first is the dearth of life-boats. While the original design provided for boat berths for all passengers and crew, which was mandatory for German liners, ultimately this plan was replaced by one where half the complement was left without means of survival. This on a ship designed for the Atlantic crossing where even at the best of times the water was known to be at or below zero degrees C. (Salt water freezes at a couple of minus degrees).

This deliberate short-coming of life-boat accommodation had a number of highly predictable consequences, beyond the immediate one of condemning at least half the ship’s complement to death. One was that there could be no boat drill, because the shortfall of places would have become painfully obvious. In turn, this meant that it was left to officers with various degrees of competence to make ad hoc decisions at the fateful time. It, as well as the class-ridden nature of pre-WW I society, allowed the owner of the line, Bruce Ismay, and a handful of his minions, to occupy an entire boat, therefore condemning perhaps an extra 35 or 40 people to death.

At one of the two enquiries into the disaster Ismay insisted that he was just “an ordinary passenger”, but had to admit that he had not paid for his passage.

And why was the number of boats cut back from the originally planned? If your answer was economy, you would be wrong. For once it was not penny-pinching. It was because if boats had stretched the full length of the ship, strollers along the promenade deck would have had their view of the ocean restricted! Shades of the later vandalism of the Sydney Opera House, where the stage space was sacrificed to allow an ocean promenade for visitors who presumably didn’t come to see performances but preferred to see the harbour lights. This decision meant the loss of millions in stage machinery, as well as the current inability to stage a lot of productions. But I digress.

Which brings me to the main question: Why would a ship equipped with radio in an ocean teeming with ships run full speed into a huge ice-berg with such disastrous results?

There are plenty of answers. The Captain, on his last command before retirement, must have been selected for incompetence, having several (hushed up) collisions on his record, one of them with a naval cruiser which was totally attributable to him. Whether of his own accord or urged on by the owners (one of whom was on board and clearly took part in the Captain’s disastrous decisions), he clearly regarded the voyage as a speed trial. Why would he do this? He would have known that the current record for the Atlantic crossing was held by the *Mauritania*, a ship with far better what we would now call power-to-weight ratio. Smith, the captain in question, had at least three warnings over the radio of ice in his path. What did he do? He speeded up! There was also the matter of the binoculars. There were at least five pairs around but none couldn’t be found for the men on the look-out. So, on a moonless night, you had this colossal ship, at that time the biggest in the world, lit up like a Christmas tree by lights which would have done a small city proud, proceeding at top speed through ice-berg infested water, its look-out hampered by having no glasses?

Admittedly, binoculars are rarely used by crow’s-nest lookout staff because you need to scan the entire horizon rather than the small part of it which are visible in the glasses. However, in this case of a glassy sea, ripples at

the waterline of the berg could not be seen with the naked eye. At the speed *Titanic* was travelling her stopping distance was around 3000 m with the engines in full reverse, so any distance saved by seeing the iceberg earlier might have saved many lives.

And why is this ship still referred to this day as having had the reputation of being unsinkable, on its way to the bottom in less than three hours after receiving a gash along its side? *Titanic* was divided along her hull into watertight compartments sealed off from one another by bulkheads with remotely operated doors. But, and there's the rub, these bulkheads finished two levels below the uppermost deck. Apparently all liners at this time had watertight bulkheads but these divided the ship into longitudinal slices and each was sealed against the uppermost deck. *Titanic* was therefore protected partially against a rolling motion but not at all against dropping by the bows or stern, when one compartment would simply tip its contents over the bulkhead into the next – which is precisely what happened. A further strange conclusion which seamen at the wheel could not possibly have understood was that a head-on collision might have cost only two to three hundred lives of staff in the forecabin area, whereas the attempt to turn the ship to avoid the collision led to its sinking.

As for the miracle of wireless communications, then in its infancy, without it probably no-one would have been saved. That said, its misuse in giving priority to major ships' communications and telling smaller ships to "shut up" regardless of the importance of their messages, played a further part in exacerbating the situation. This fatal flaw was built into a system where the communications firm Marconi was a contractor to all shipping companies and laid down the rules which should, of course, have been administered by international maritime authorities.

So there you have it – most of it. Next time you hear about some yachting skipper who takes mad risks to win an ocean boat race and jeopardises the lives of his crew, think of White Star Captain Edward J. Smith, who for some strange reason treated what was then the world's largest passenger ship as if it was his private yacht. Think of the machinations of the owners of a shipping line then near bankruptcy, and what it means to have such men in charge of a company with power over life and death of thousands and who, as did the owners of White Star, can manipulate official enquiries to blame the courageous but powerless and exonerate the cowardly but powerful

And finally, think that all of these unthinkable are precisely the rule nowadays, nearly 100 years later, when the world's most dangerous men are in charge of the world's most dangerous technologies. Be afraid, be very afraid...

DIATRIBE 137 - The Terror Of The Remotes

Once upon a time electronic equipment was about knobs. In the 1920s you had to twiddle three knobs to tune in a radio station properly. With television stations, you had to rotate a clunky knob to select a station, and another twiddly knob to fine tune that station. What a relief it was to find the first push-button tuning radio for cars; of course you didn't want to risk your life – or other people's - twiddling knobs while driving a car.

These early push-button radios still selected their stations by twiddling a rotary knob. The push buttons actually did the twiddling for you – they physically rotated the tuning knob to the right position, the one you had selected usually by pulling the knob out, then tuning the set to the station. When you had done that, you pushed the knob in again and, hey presto, the set tuned to the station every time that knob was pressed. Five tuned stations meant five preset knobs. A blind person could operate the set, you could tune it in the pitch dark, it was all very convenient.

When FM came in, there were push-button car radios where one end of the row of buttons were AM and the other FM and there was an in-built switch which selected the band and which was automatic depending on which end the button was at.

All this convenience changed when the tuning process became electronic. This wasn't done because it was better or more reliable. It is simply because it is a lot cheaper. If you have ever had to re-string a dial cord on any sort of radio, you will be aware that there is a fair bit of work involved. Manual labour in any product nowadays is a no-no, so we now have electronic tuning not only for radios but electronic switching for nearly all electronic products as well as for others like heaters, car locks and no doubt lots of applications I haven't yet heard of. Many of these come with a remote control – some indeed can only be operated by a remote control.

There is nothing miraculous in the function of a remote control, nor is it very novel. I remember a German documentary film of the 1930s which depicted an entire seagoing destroyer operated remotely, clearly as a means of scaring future enemies. This was done by radio, but any means of transmitting a signal by sound, light or wire, or even semaphore and hand -signals can be used. I suppose the army commanders of antiquity must have controlled their subordinates by one means or other. The technology of remote control took a step forward early in the 20th century when the telephone system was automated to select one subscriber out of many thousands and to connect your call to them.

The system used in current remote controls is very similar to the old dial telephone. When you press one of the buttons, the device sends out a stream of coded pulses which in the receiver are translated into a control signal which actuates the selected device. There are integrated chips which do it all for you it is a lot simpler than having a wire to each of these controlled devices. Indeed, so simple is the system that a virtually unlimited number of devices can be switched by the one remote control. This is more of a curse than a blessing.

We recently acquired a set-top box for our television. Not that we want to change to digital television which offers few attractions; we simply wanted to get our signal back after it had been largely lost to the 2 story mansion built next door which has a tin roof largely shielding out the path to the transmitters. So we now have four remotes gracing our lounge-room table - one for the TV, one for the VCR, one for the set top box, and another for the radio/CD player. If we want to get onto a digital TV station, we have to first select the TV set's channel which connects the VCR, and then select the VCR channel which connects to the set top box, finally followed by selecting the function in the set top box. If we want to mute the sound, or control the sound level, we have to use the TV remote; we can select an analogue TV station we can do so either on the TV itself, or via the VCR, or via the set top box.

Each of these offer other choices, the set top box scores most highly with at least 50 choices through its menu, some of them reached directly through the STB remote and others as second or third selections after you first used a remote button. Some come up immediately you press the button, with others you have to wait a few seconds. The TV screen confirms your choice once you get there, but stays resolutely blank or a pretty blue if the sequence of button pressing has led nowhere.. Each appliance can be turned off or on; if you leave it turned on you can press buttons to make it inoperative but it will, if left in the "on" mode, consume electricity over 24 hours a day, some of them up to 20 watts, the amount consumed by a small light globe. All of them use some power even in the "off" mode; it is needed to operate the sensing of the remote. If you want to use any of them you have to switch on the TV to be able to display the menu. It is estimated that in the US there is at least one power station running full time to supply all this power night and day.

In all, this system has 108 buttons for the TV and 26 buttons for the sound on 4 separate remotes. A lot of them lead to more menu choices – there must be hundreds of them. If you asked the manufacturers, they would tell you that this all adds up to wonderful flexibility for you, the user. When you ask most users they will tell you that they never use most of these selections or adjustments, and that they get their single-digit aged kids to program the VCR (more buttons not mentioned in my list of 108) if indeed they ever program the VCR at all. The reason why kids are good at programming equipment is that they know that only rarely can you damage electronic gear by pressing the wrong buttons, so they keep playing till they get it right. Nature also equips them with a tremendous ability to memorise disparate items, an ability quickly lost in later life. If, as an adult you feel overawed by this ability bear in mind that at that age you probably had it too. And it is good for the kids to have proof of what they always knew – that adults are stupid and incompetent.

It would be dead simple to incorporate in each remote a means of immobilising the buttons you never touch once the equipment has been preset. It would also be easy to give users a remote which has only a few buttons which you or your teen-age carer can program to address only the functions you are interested in. There are programmable remotes around which can be tailored to handle the functions usually performed by all of the others, but they too have dozens of buttons. So heaven help you if have lost your marbles or some of them, if your eyesight is defective or your fingers stiff with arthritis, or If you haven't got a teenage offspring, you will just have to remain a slave of your machine. And don't forget to thank your God night and morning for the benefits of "high" technology.

DIATRIBE 138 - Where Have All The Lefties Gone?

It seems a pity that nowadays the political left is almost exclusively seen as a protest movement. Of course, there is plenty to protest about. In fact, if you look at the newspaper correspondence columns you'll find them full of protests. Indeed, so-called alternative politics are often referred to as the politics of protest. There are protest songs, and protest movements. There is protest literature and protest film. In short, nearly everybody seems to be aware of zillions of things they don't want and are prepared to be vocal about not wanting. Unfortunately, very few people nowadays have much of an idea of what they *do* want instead. And a lot of protest is not directed against the capitalist system.

150 years ago, when ideas of socialism were discussed more widely, there were few ambiguities or at least people thought they had an idea of the future they wanted. They were, after all, simple things. When the Russian workers started their revolution in 1917 their simple slogan was *Peace, Bread and Land* and *All Power to the Workers' Councils*. There was no call for four-wheel drives or 10-room mansions. It was possible to claim, in the words of the *Communist Manifesto*, that workers had nothing to lose but the chains that bound them. If you didn't believe it, it only needed a walk through workers' or peasant's quarters to convince you. But then, you would

probably have lived in a hovel yourself and gone hungry most days, like people in many Third World countries still do today.

Today's workers in countries like Australia have been persuaded that they have an enormous stake in the chains that bind us. In fact, the chains that bind us largely consist of our property. Mind you, even middle-income workers own no more than perhaps 3 years' incomes' worth of property, and even that couldn't be turned to cash in a real emergency like a depression. But in so-called first-world countries capitalism has found it convenient to channel its class-hatred into opposition to what unionism is left rather than – for the moment, at least – burning or maiming its workers (although there is plenty of that, still). And let's face it, given the massive productive capacity of today's industry, throwing workers a few crumbs is not crippling the rich, particularly as the rich think that this is only a very temporary state of affairs. Given the current state of politics, they may well be right in that.

The Left used to be denigrated by its detractors by suggesting that their slogan was "Look at these rich bastards with their big cars and big houses. Come the revolution we'll have all the big cars and the big houses". There was, unfortunately, a great deal of truth in this taunt. In the now defunct Soviet Union much of the boasting was about "overtaking the West". In the so-called Communist China this is what is already happening. Rampant private consumption is leading to enormous problems with pollution, domestic misery and concentrating on material and particularly monetary "values". Apologists in the West tell us that massive over-consumption of luxury items may be a "stage all societies have to go through", but they don't tell us who wrote this apparently inexorable law, or where we are going to get the resources to allow all our societies to replace the misery of shortage due to one form of class society with environmental disaster due to its parallel forms of technology.

Some very long time ago I spent part of a holiday with a tape recorder asking some of my lefty friends about how they saw a socialist future. All of them found it difficult to put their respective fingers on just what part of the capitalist system they found most objectionable and how they wanted it changed. I came to the conclusion that they only found capitalism objectionable in its detail, but not in its general consumerist approach. They all had a vague feeling that the system had short-changed them; this was undoubtedly true. However, as far as I could see, the nature of the deprivation was pretty well misunderstood. You could see this from the absence of suitable remedies proposed. Mostly they seemed to be about material goods and services, absences and shortcomings which in themselves were real enough given present-day society, but which would be exacerbated if we attempted to remedy them in the way the complainants suggested.

You can work it out for yourself by looking at some present-day "realistic" demands. Take education, for instance. Present day education is about fitting children and young people into the work-force. Yet most of us have a feeling, instinctive or specific, that the way we perform work is totally wrong. Or take the shortage and inadequacy of public transport. Of course we need better public transport. But most of our complaint is about peak-hour traffic. The real question is do we really need to perform our chores hours away from the community in which we live? Indeed, are these chores necessary and worth performing?

We are no longer living our lives as circumscribed by our natural environment and by conditions whose impositions we ourselves have failed to resist. Our lives are mainly at the mercy of technologies which are in the first place imposed on us by a class society. Unfortunately, we generally accept most of these conditions as inevitable or even as beneficial to us. Without getting too philosophical, our dissatisfactions spring from this assumption of inevitability and even attractiveness of circumstances which are neither inevitable nor attractive when we view them from the point of view of a humane society. To put it simply, even those of us who claim to reject the capitalist system, have, like the sorcerer's apprentice, handed control of our circumstances to forces we cannot control and, worse luck, in most cases don't even want to control.

We have to ask ourselves whether the now generally accepted left point of view is actually a radical point of view. "Radical" means going to the root of things. However, the capitalist system has now become so all-pervading, that we can no longer even perceive its roots. Our protests only rail against symptoms we no longer even understand the disease. That is why most of the remedies that are suggested for the ravages of technological society generally tend to be technological remedies which will exacerbate the disease.

It is therefore only to be expected that, by and large, the left is bereft of meaningful analyses and suggestions for positive change. This doesn't, however, leave us in a hopeless situation. Even in Australia, where capitalism still seems to work in a manner which allows a belief that it has a future and that we have a future within it, we see groups of people opting out of an urban consumer lifestyle. As people have to work harder and harder to achieve less and less in the way of material acquisitions it is just possible that technology based capitalism will fall more and more into disrepute.

DIATRIBE 139 - The Uranium Industry Attacks Again

At the end of World War 2 the western uranium industry was given a fantastic present. For years, the world's top scientific brains and the west's engineering establishment had laboured to produce nuclear weapons, with

ultimate success. All this unprecedented effort was now placed, free of charge, into the hands of a largely private industry.

In its explosive form in bombs, this new technology was worthless. There were attempts to present it as a means of excavating canals, but these were soon exposed as a way of acquiring bomb-making capacity. Actually, the exploding of fissile materials is a very inefficient process, and realises only a tiny fraction of the energy contained in the fission process. As usual, despite constant claims to the contrary, the by-products of a highly focussed piece of research such as bomb-making are negligible. So are the results of so-called brainstorming sessions.

This didn't deter the spin-doctors. They invented a great slogan – *too cheap to meter*. In hindsight, this was ridiculous. The only thing cheap about nuclear power was the raw material, uranium. Even it was no cheaper than coal which the mining companies got for the cost of getting it out of the ground. Of course coal was black or brown in other words dirty in distinction to uranium which was supposedly clean; indeed, another slogan of the nuclear industry was *safe, clean and cheap*. Nuclear power stations were complex, however, and their construction was concentrated in the hands of a couple of monopolies, which from their point of view was all to the good.

The only snag the industry could see was the fact that Uranium supplies were limited. This was tackled by building so-called fast breeder reactors, operating at very high temperatures which made them capable of producing more nuclear fuel than they consumed. Unfortunately, all the experimental fast breeders proved so horrendously problematic that all of them – some six or so – failed to ever breed anything other than troubles for the industry.

This, however, was only one of the problems. Nuclear power wasn't clean but produced radio-active waste both from the spent fuel rods and from anything that had been used in the cycle, spent fuel rods, bits of power stations and ultimately the stations themselves which, when decommissioned after 25 years, would remain dangerously radio-active for thousands of human lifetimes. And, whenever something went wrong with this complex technology, there were horrible accidents which had permanent ill-effects, quite different to other forms of power generation which, even if they killed hundreds of miners, didn't affect people outside the industry. (This was before the horrors of asbestos related diseases became known).

The temporary death-knell for nuclear power sounded when the Chernobyl power-plant blew up in 1986, killing since then around 100,000 people, with the death-toll still rising and claiming the lives and health of untold numbers mainly of children and the unborn. The construction of new nuclear reactors ceased, and for 30 years became restricted to countries hell-bent on acquiring nuclear weapons capacity, such as India and Israel.

Actually, while nuclear power became discredited in the public mind because of its dangers, the industry was mainly concerned about its cost. Nuclear energy had been exposed as dirty and dangerous, but it also was clearly more expensive than fossil fuels such as coal, natural gas and mineral oil. In recent years there has been a revival of the so-called nuclear option. Previous reasons for nuclear power having failed, the very real threat of global warming has enabled the nuclear barons to renew their onslaught. Now you and I know that there has been little change in the reasons why nuclear energy should not be touched with the proverbial barge-pole. Nuclear power has proved to be not clean, safe and cheap, but dirty, dangerous and expensive.

But luckily for the industry, the exposure of these fatal draw-backs has now been concealed by the mists of time. And the nuclear industry has learned quite a bit since those early days. No longer are they telling us that nuclear power is cheap, clean and safe. Instead, they admit that nuclear power has its draw-backs, but that these represent a "lesser evil". And what would be the "greater evil?". The answer is obvious, or at least should be. It is clearly unthinkable that the fossil fuel industry should suffer a loss of profits which is not compensated by other mining investments. Or that the fancy gadgets now on the market which guzzle power should in some way be restricted.

Some of these are horrendous. Current wide-screen plasma televisions, for instance, consume as much power as a room heater, which means that on a hot day some 4 kilowatts will be wasted in running the TV and the air-conditioner which gets rid of the heat generated by the TV. The capital cost of the generators to supply all this power from just this one source in just one house from fossil fuels will be some \$15000.00 the cost of dealing with the greenhouse gas pollution cannot even be estimated. Given that much of this cost flows to the industries concerned, it is not surprising that the moguls who own these industries would regard cutting down on power consumption as a disaster. They would regard anything that avoids conservation as a godsend.

Concern about global warming provides such a godsend. As I said, even if they can no longer argue that nuclear power is a perfect solution, they can still pretend that it is a solution. And they have certainly hammered this argument in recent months. What is more, they have roped in all sorts of unlikely supporters for their cause, not just the usual industry representatives. This includes people like Bellamy who is a naturalist, and James Lovelock who put forward the notion of Gaia, the self-healing environment, which will allow the planet to survive even if humanity isn't going to be a part of it.

In order to make their points, these people claim that the problems with nuclear power have now been solved. Even the examples they give, like waste disposal, are nonsense. At the moment we are further away from solving the problem of waste disposal and the safe dismantling of nuclear power stations at the end of their life

than ever before. And as for accidents, the notion that these will disappear once we have thousands of new plants assumes that familiarity with a technology breeds safety is nonsense – all it breeds is contempt for well-established risks.

But let us assume that we can ignore the risks and the waste problem, will this mean an end to global warming? Not on your sweet Nellie. As I mentioned before, and as is well known to the industry, the amount of available uranium would only last around nine years if the entire world's electricity were generated this way. Even if this were not the case, we would still have to cope with the fact that only about one sixth of the greenhouse gas problem comes from electricity production. These two major obstacles to the “nuclear solution” are never mentioned by nuclear protagonists even though they were well known in the 1960s. As Maxwell Smart used to say – I told you not to tell me that!

The best way to tackle the global warming problem is not to produce the polluting gases in the first place. The improvement is immediate and, better still, conservation actually saves money as well as resources!

DIATRIBE 140 - Class Hatred Rampant

As I compose this, the current Howard Government is once again talking Industrial Reform. Translating this into English is not easy. As usual, nowadays, Lewis Carroll's Alice in Wonderland concepts apply – words mean what the boss wants them to mean, which is the opposite of what you and I understand by them. *Industrial* refers to anything done by wage slaves, real industry having been sent overseas years ago except for those items which you cannot shift, and *reform* refers not to change for the better, as the dictionary says, but any change at all but usually for the worse for those affected. In the current push, it doesn't even mean change; what the bosses want to inflict on us is exactly the same as they have always wanted since the beginning of the industrial revolution. This has little to do with economy; it is to do with repressive ideology.

It doesn't take a great deal of thought to verify this. Fundamentally the bosses' demands are mainly around wages and hours and workers' conditions. This assumes that what's nasty for workers is good for the bosses. There is absolutely no proof that this is true. As I have pointed out previously, there have been enlightened employers down the ages who understood that healthy and satisfied workers were more productive than overworked and starving children. This was acknowledged by Robert Owen, Britain's most successful mill-owner of the 18th century, by Carl Zeiss of optical manufacture fame and by HVMcKay whose innovatory agricultural machines revolutionised Australian agriculture, to name but a few.

In all these cases, fellow bosses strenuously tried to prove that these enlightened policies would ultimately send the enterprises bankrupt, just as in an earlier social system it became a mantra that if you owned slaves you could exploit them more efficiently if you beat them night and morning. Nasty names such as *nigger-lover* were invented for owners who refused to do this.

Since those days the only fundamental change in employer economics has been the massive increase in the productivity of labour, often by a factor of hundreds. This hasn't fazed our industrial ideologues one little bit; their arguments are still the same: We need higher productivity to survive. Only with globalisation they pretend that they have to subject their workers to the race to the bottom internationally to survive. Strangely (speaking ironically), this applies all round, even in the building industry which would find some considerable difficulty in exporting its projects.

One may claim with some semblance of truth that had it not been for this illusion of the predominance of labour costs many improvements in western lifestyles would have been impossible. However, as I and others have pointed out frequently, many of these improvements were in themselves consumerist illusions. Those that were not, such as many improvements in medical science, were often not the result of economic competition. Much as our economic rationalists would like to deny it, there are still individuals around who do things for interests other than narrow money-grubbing. Two-thirds of “retired” people do voluntary work.

Returning to my theme, the idea of getting more out of workers and the various means of doing it is by no means new. Karl Marx in the first volume of *Kapital* cites the reports of the British Factory Inspectors from the first half of the 18th century, and I am sure the attempts to increase the working day and labour intensity go back well before then. What seems novel is the deliberate attempt to turn the clock back as regards the downgrading of working conditions. The usual trick was to improve these conditions under the pressure of industrial action and later to claim that it had all been done due to the generosity of the boss. Actually, the improvements didn't cost the bosses a lot because workers were always paid by the hour.

It is, however, amusing to recall the idiotic arguments that were advanced to justify their drive for longer working hours. One of the funniest was the “twelfth hour”. At a time when the standard working day was twelve hours and workers were agitating for an eleven hour day, bosses said that as the profit on their operation was about 10%, that profit was produced in the last hour of the working day, the previous time having been spent in reproducing

the worker's wage cost. It was the last hour in the day where all the profit was made and if that hour was abolished all bosses would go broke.

Similar arguments were put forward to claim that it was essential to keep children's noses to the grind-stone. Special dispensations were granted to employers to employ ten-year olds, not in a third-world country but in Australia three generations ago. At all times there was an insistence that workers had to be "free" to "choose their own conditions". Marx mentions a "petition" by workers to parliament which said that if six-year olds were to spend less time at work "the devil would find work for their idle hands to do" In a curious but not unexpected parallel with current ideas one of the improvements suggested was that workers should be allowed to trade meal-breaks for cash.

When I was a boy, we learnt about proportions by way of examples such as if it takes 10 men to build a house in 3 months, 3 men would take 10 months to do the same. This nonsense was also peddled 150 years ago and incorporated in public policy. I have a paper entitled *The mythical man-hour* which shows that in soft-ware writing the concept of proportionality of labour-time and output is a nonsense. You cannot automatically speed up a task merely; by putting extra workers on the job half-way through. Similarly, the lengthening of the working day does not bring a proportional increase in productivity; as Robert Owen pointed out, the expensive materials which are often wasted through spoilage cost far more than the savings in wages.

There are numerous examples of this kind we can quote from the middle of the 19th century, all mirroring not only present-day industrial thinking but present-day rhetoric. There seems to be one exception: The reports of the then factory inspectors were dominated by the outrage of the men who wrote them, whereas nowadays they would be dominated by apologies for the bosses. Which official to-day would dare to write that given the disparity in industrial muscle, "to permit (workers) to work unlimited hours is tantamount to compelling them to do so".

As Robert Owen proved, bosses' oppression of workers was not always to the bosses' financial advantage. Now, as then, greedy bosses only listen to what they want to hear. We should not therefore always accuse them of acting out of self-interest but realise that their motives are their *perceived* self interest. It is this alienation which leads them to destroy the planet and us with it.

DIATRIBE 141 - Useful Transport Technology – The Bicycle

Getting from A to B, is that the question? Unfortunately, it is only one of the questions, and it is very inadequately addressed by privately owned motor cars. However, this time round I don't want to talk about things that don't work but about one solution that does. I am talking about the bicycle.

The humble bike has a long history. It started with a sketch in one of Leonardo da Vinci's notebooks which was originally attributed to the master himself, then to one of his apprentices. I think the sketch was almost certainly somebody's idea of a practical joke; after all, Leonardo was supposed to have invented almost everything, so why not a bicycle.

The first real documented bicycle was built in the early 19th century by one Baron von Drais to move around the garden paths of his no doubt extensive property. It was called a Draisienne and was low enough for the rider's feet to reach the ground. From there, the rider propelled the contraption – and himself – along by simply walking or running and lifting his/her feet to let inertia do the rest. One of the reasons I feel that the "da Vinci" sketch is a more recent forgery is that it is a dead ringer to the Draisienne. When I was a boy, and for all I know to this day, the railwayman's repair trolley was called a "Draisine" in German, although it bore no similarity to the *von Drais* vehicle. Nor did the *von Drais* contraption show any close similarity to the now standard push-bike.

This modern design was arrived at in about 1885 after the creature had gone through various stages of Penny Farthing designs, the original one with the Farthing trailing behind the Penny being deadly dangerous, catapulting the rider headlong onto the track in any case of sudden stops. Yet it is this deadly version which you nowadays see in vintage cycle exhibitions.

The bicycle is a machine which demonstrates how any mechanical design pursued for its utilitarian value arises as soon as it becomes feasible in terms of availability of materials and material technology. The Draisienne was made of wood throughout, and consequently was heavy and pretty rough on the rider. It took the metallurgy of high tensile steel as used in piano strings and suspension bridge steel cables to make the sort of steel spokes which we nowadays take for granted, and rims which don't collapse when these spokes are tensioned up to make a bike wheel. Another necessity for a successful bike was the pneumatic tyre. And the modern bike also had to wait for the availability of reasonably priced chains and sprockets. Curiously, a shaft driven push-bike also appeared briefly before the turn of the 20th century.

All this was in place by 1885. And lots of it came from much earlier technology. Anti-friction bearings (ball and roller bearings) had been invented by Leonardo da Vinci, but obviously take their origins from the ancients moving loads by resting them on rolling logs. John |Harrison used anti-friction bearings in his chronometers.

As bikes spawned three and four wheel versions they, in turn, gave rise to many of the ideas embodied in motor-cars later on. In 1902 Sturmev and Archer incorporated a planetary gear (invented by James Watt 100 years earlier) in a very complex yet reliable three-speed bicycle hub which is still on the market. Henry Ford's T-model sported a planetary gear box which was somewhat similar in concept but nowhere near as elegant in design.

Indeed, you might say that the first motor-car was simply a four-wheel bike with an engine in place of the human propulsion system. Like a modern car, the four-wheeler had a differential to make up for the difference in rear-wheel speeds when turning a corner. There were even bikes with rack-and-pinion steering, although early cars relied on a tiller. The idea that the first motor cars represented a quantum leap in technology is fanciful to the point of being ludicrous.

Given the amount and scope of previous technology, the range and scope of early cars – and late bikes – was large. But in addition to the bikes that took labourers to work and postmen on their rounds, there were - and are - bikes for specific activities, there were tandems or even bikes for three riders, people fitted side-cars and carriers for tools of trade. There were sports bikes, just like there are today, except that today's luxury bikes are often obscenely expensive for reasons which are hard to understand, except that there is a market for them. To be sure, you want your bike to be as light as possible, yet as rigid in the frame as is compatible with the light weight. All this doesn't warrant a \$6000 price tag. Expensive mountain bikes are not much cheaper.

In Eastern countries, local ingenuity came up with various forms of bicycle-wheeled rickshaws and trishaws, still favoured by rich locals and foreign tourists who get a kick out of being propelled by an emaciated human beast of burden. Besides, in crowded lanes a rickshaw would beat a taxi hands down. During the Vietnam War the bicycle became one of the most important means by which patriots moved arms and other supplies through the countryside.

Bicycles have been referred to as the world's most efficient machines. Think of it this way: When you drive your car to the local shops, that's a tonne of steel and glass to shift 70-odd kilos, or perhaps 110 kilos if the lack of exercise has made you put on fat. Against this, a bike weighs perhaps 10 kilos. So the all-up weight of conveyance and rider is only one tenth or a twentieth of a car and driver. Besides, the exercise of riding the bike will do you no end of good. Even riding in wet weather is no big deal in Australia. Looking at pictures of urban roads in Holland or China in the heyday of the bicycle you even see people riding under umbrellas. And these are places where it really rains when it rains, if you get my drift.

As a person who used to ride a bike to and from work as well as to holidays 200 km away, and now looks back wistfully to the days when I could still do it, I can only advise you to try it or try it again if you have given up. And if you are one of the people who uses an exercise bike to get your weight down, why not leave it in the shed and use the real thing to get about on and save heaps of money in the process.

Most importantly, you will contribute to your fellow citizens as well as yourself in numerous ways. Firstly, by not polluting the atmosphere with carbon dioxide and oxides of nitrogen; secondly by not wasting the world's resources by replacing a tonne of materials every few years; thirdly by allowing cities to be smaller by having fewer garages and road space; fourthly by emptying the emergency wards of hospitals currently devoted to accident victims; fifthly – but need I go on? Think it over.

DIATRIBE 142 - The Drive For Complexity

Recently I came across a medical report which said that problems with electronic devices implanted into patients with heart troubles had recently got worse. Now this happens to be one area where modern technology has really helped people, at least those who are fortunate enough to be able to afford it either individually or through some beneficent health fund.

The early pacemakers simply put out pulses to the heart at regular intervals regardless of whether your heart was functioning normally or not. Should your heart miss a beat, as would happen during a heart attack, the artificial pulse acts as a defibrillator and has a fair chance of keeping your heart going? It is a basically simple device.

However, even these simple devices were not entirely trouble-free. Being encapsulated in plastic and implanted under the skin, they had to rely on the integrity of this encapsulation for their functioning. I remember seeing an x-ray picture of an early pacemaker almost entirely devoid of its plastic shell which had been dissolved in the patient's body fluids which are highly corrosive. As a result, its beat rate went up to 300 a minute and would have gone up further had not the death of the patient intervened. This was 30-odd years ago, and presumably those early bugs have now been ironed out. There have been lots of improvements in these technologies over the years and given the escalating costs of medical insurance there would also be massive incentives to improve reliability.

So why should there have been an increase in the failure rate lately? In the absence of information so far, I have to presume on the basis of what we know from the ads for such devices. Even in my day there was a tendency

for the very simple device I described to be replaced by what was then called a triggered pace-maker. Instead of sending out pulses to the heart at a fixed rate, these devices checked for the naturally occurring heart beats which are associated with their own electrical signals, the ones which are registered in electrocardiographs. (ECGs). These signals can be analysed for a variety of symptoms and conditions, not just the pulse rate, by medicos, and presumably also by suitable electronic circuitry. In fact, there are so many of these devices around that they fall into three classes and some of them are even programmable from outside the body.

Now given that pacemakers in most cases don't do anything until your heart malfunctions, it is difficult to see what all this complexity is about. I think most of it is about money; all the really expensive ones are flogged by private industry and cost thousands of dollars, to which you have to add the cost of surgery.

One of the side-effects of complexity is the problem of maintaining reliability. While compared to, say, a mobile phone even the most bell-and-whistle equipped pacemaker is ludicrously simple, the environment in which it and its leads operate is harsh in the extreme; indeed a lead problem has led to claims which nearly sent the manufacturers bankrupt a few years ago.

Nor would this be the first time surgical instruments have been made too complex to use conveniently or safely. I remember how surgeons complained decades ago that they had to drag their simple, old and reliable cautery equipment from operating theatre to operating theatre because they couldn't (or wouldn't) find the time to familiarise themselves with all the unnecessary knobs and dials adorning the gimmicky gear they were presented with in the various operating theatres they had to use.

Of course, we are used to the endless gimmicks the consumer society inflicts on us. Every mobile phone comes with a thick booklet which offers you endless choices, most of which you will never use and therefore can't remember even that they exist. But with medical devices we cannot afford to take unnecessary risks; every unneeded option is an option for a likely mistake.

Why are these options there in the first place? The answer lies in modern electronics. With mechanical devices, to add options means to complicate the machine. As an example, I might mention the typewriters that were once available to do a sort of type-setting meaning the proportional spacing and justification which you get in books and newspapers. This requires the typing of a full line because only then are you able to determine how much space there is to fill. The first time you typed the line the machine recorded the line length. In effect each line had to be typed twice. Not only was this process laborious, the machine was expensive. I am only describing this process to show how much effort was saved by the electronic equivalent. Not only is the electronic process a lot faster, but once you have told the machine how to do it – this is done by writing a set of instructions called a program – this is all you have to do to get the machine to do it every time.

That is all it takes to get the machine to perform yet another function. No wonder that once you have a computer or processor in a machine there is a great temptation to add endless extra features which literally cost nothing to include. As I said, mobile phones are a good example of a device to which endless gimmicks have been added as sales features which don't excite most people who want to use the phone to contact others like Alexander Graham Bell did when he first used the new invention to call his assistant from the next room.

The wheel has now turned full circle. Vodaphone is now going to market a mobile which is just a device to call from A to B. They will make it of a size where you can still press the buttons with paring your fingers down with a pencil sharpener, and where you can read the screen without a microscope. Banks are going to employ managers and tellers, after discovering that the community banks which had sprung up to serve customers who want to talk to humans were doing very nicely, thank you.

How do these "backward" organisations manage to make a profit despite employing human beings? Think of how much it costs to employ the machine. Think of how often there are glitches in these machines. Think of how much it costs every time a technician has to travel many kilometres to fix these frequent problems. Think of the cost of dealing with complaints, many of which are either due to unfamiliarity with the equipment or due to user frustration.

In the end you may come to the conclusion that the huge profits made by some of these companies are achieved despite their reliance on computers, not because of mechanisation and computerisation, and not due to having forced us to accept their technological "reforms".

DIATRIBE 143 - Unintelligent Design

You might remember one Professor Ian Plimer who lectures in Earth Sciences at Melbourne University. He is a noted member of the Australian Skeptics, a society devoted to debunking religion and other sundry superstitions. Now far be it from me to defend either of these pursuits; it is just that most of the people who attack superstitions are pretty selective in which superstitions they choose to attack. Plimer chose as his target some harmless nut who claimed to have found Noah's Ark somewhere in the Middle East – on Mount Ararat, to be precise, which is where Noah is supposed to have dumped it after the so-called great Flood.

I have always had my doubts about the flood, about Noah's part in rescuing all these animal species. Among the so-called evidence that was presented, photos of the site showed a lot of shale and slate which might well have been the remains of God's notebook where he listed for Noah's instruction the thirty million or so species which needed rescuing. However I gave up on that idea when considering the magnitude of that task, the possibility that amongst those species a pair might have been homosexual and therefore unwilling to procreate or that Noah might not have been able to distinguish between, for instance, between the hundreds of species of mosquitoes or flies.

These misgivings of mine were clearly not shared by the creationists who had made this supposed discovery and were flat out measuring the find and converting metres into cubits, while impressing their followers with this further proof of the truth of bible stories, a pursuit which nowadays is big business amongst documentary film makers looking for funds.

I wrote to Ian Plimer to ask him why he felt he needed to attack this particular piece of stupidity while we had the whole of society running on the anti-science of economic rationalism. After all, while it is obvious that it is not a good thing to confuse kids' minds with religious assumptions which run counter to their own experiences, there are more important attacks on common sense which deeply affect our lives. As I write this, our media are saturated with primitive but insistent claims that by paying workers less we will actually make them better off. These lies are being paid for not by the ideologues who have invented them, but by us with our taxes. Such cultist anti-science impositions don't rouse the ire of the Skeptics, however. Plimer wrote back to me, in effect saying that whatever target he chooses for his "exposures" is his business, a contention which was beyond dispute. He later involved the courts in his campaign, a bit like the old days of ecclesiastical courts deciding whether the earth was flat. The High Court, instead of ordering the proponents of heresy of whichever brand to be burnt at the stake said it was outside their jurisdiction and for once I couldn't fault their decision. That little episode cost Plimer his house in court costs, which shows that it doesn't pay to meddle with the heavenly powers.

If there is anything enjoyable in the current creationist kerfuffle it is the way it brings out the differences between the various brands of the cult. I, for one, can readily understand that a devout evangelical Christian would regard anyone who regards the world as "intelligent" as an arrogant impostor; after all, God's ways are supposed to be beyond understanding and it isn't up to us to judge whether it is intelligent or not.

If I waste time on the question of creationist cults it is only because of the importance they have assumed in recent times in world politics and the way they have influenced Western science and technology. In this world everything is linked to everything else. After all, when westerners ran crusades in the Middle Ages, their cruelties towards their enemies were certainly horrifying but at least they were limited in extent. Nowadays, the evil men of the so-called West are armed with unbelievably destructive weapons, and even their presumably empty threats carry horrendous implications for the world as a whole.

And there is no doubt that these people take their threats against humanity very seriously indeed. Nor is it surprising that their chosen enemies are retaliating in kind both in word and in deed. In antiquity, Muslims were happy and able to live in peace and relative harmony with their neighbours even if they might have referred to them as infidels which after all, they were from the Muslim point of view.

What I find particularly attractive is the early Muslim attitude to science and technology. Western attitudes to Muslim, Chinese and Hindu science and technology are generally based entirely on arrogance and ignorance. From what I can find out, the only martial technology that was developed in the oriental world was an unparalleled ability to produce high-grade steel for swords by a highly labour intensive process. However, apart from this, at the time when European culture was a black hole in which barbarians ruled supreme, other ethnic groups had flourishing civilisations. Islam, in particular, gave rise to a flowering of science and arts unparalleled in the Christian world. It is hard to understand what went on under Christianity; the dogmas that were enforced by sundry tortures and burnings at the stake had nothing to do with the teachings of Christ or his Jewish forebears, but were almost entirely based on ancient Greek thinking. Aristotle seems to have been one of their favourite masters, but there were others of similar vintage. What is more, the Christian scholars didn't even get this Greek knowledge first hand, but by re-translating Arabic texts in various libraries into Latin. And while there were, and still are, Catholic seats of learning, a lot of their time seems to have been spent in trying to prove dogmas rather than getting on with the job of generating new knowledge by observation and experimentation.

We also need to remember that Western civilisations were certainly leaders in the intolerance stakes. Until the 15th century the Islamic communities were happy to include not only Muslims, but Christians, Jews and anyone else prepared to contribute to their society. We need to remember that the crusades were a western invention. The lies which justified them, then and now, were indicative of the spirit of aggression of a society which had, as its motto, the idea of turning the other cheek when attacked.

Largely as a result of religious arrogance and superstition we were all brought up to believe in a thoroughly distorted picture of the rest of humanity and its contribution to the world's knowledge and practices. It turns out household names like Galileo, Copernicus, Kepler, Bacon, Newton, Da Vinci, Benjamin Franklin etc. were often hundreds of years behind their Muslim forerunners whose names hardly exist in our history books. It is not only because of geographical separation; many of the Muslim sources came through Spain and Sicily which had

large Muslim contingents until they were driven out at the time of Ferdinand and Isabella whose court still officially believed in a flat earth and who kidded themselves that Columbus had “discovered” the Americas. Indeed, many of the early world maps which “miraculously” depicted details of areas which lay “undiscovered” by Europeans were clearly known to Muslims, Chinese and others.

And it isn't as if our world view and our philosophies had been successful in generating human happiness and satisfaction. On the contrary, when in the past deserts and famines were created by human civilisations this was due to a lack of understanding not the deliberate promotion of ignorance. It took European religious philosophers, ancient and modern, to revel in their deliberate ignorance and to burn at the stake those who tried to spread knowledge, or to make laws to lock them up.

If we want to counter the superstitions which are pervading our society more and more, this cannot be done by attacking their beliefs in the High Court of Australia. As in the past, enlightenment will only come through proving that we have a philosophy which works better. Unfortunately, our rulers currently are doing the reverse. They want to prove that the bigger guns always win. While this may be true in the military sense, the people are never the winners in these contests.

DIATRIBE 144 - How To Kill Workers More Efficiently

Currently, the Federal Government is introducing a mass of changes to the way bosses are entitled to oppress workers legally. Of course there is nothing new in the notion itself. As Marx and Engels, and others before them pointed out, the capitalist system is based on exploitation of one class – the workers – by another, the bosses. They pointed out the mechanism by which this legalised theft is perpetrated. The bosses pay workers not for the work they are doing, but for their labour-power, the time they spend in toil, multiplied by the intensity of this labour. In other words if you can work your wage-slaves twice as hard for twice as long during a given period, you will get 4 times as much return for their labour.

Unfortunately for the masters, one cannot increase either the labour time or the labour intensity at will. Nature has set awkward limits. The day only has 24 hours, and labour intensity cannot be increased ad infinitum because of the limits of human exertion. The other limits are set by the struggles of workers to the right for human if not humane conditions. This used to be called the class-struggle before the academics and the ALP got hold of the idea. Nowadays we are again told by “both sides” of politics that really there is only one controlling factor called “the economy” which regulates the rate of exploitation (except that in this version “exploitation” doesn't exist).

To ensure, however, that “the economy” doesn't overreach itself in handing largesse to workers, right from the start of the industrial revolution governments have made laws like the *masters and servants act* which lay down some downright nasty limitations to workers' rights. By and large, however, there is no need for special laws; as Romain Rolland said: *The law in its majestic impartiality punishes rich and poor alike for stealing bread and sleeping under bridges.*

So far, I haven't gone beyond all the derogatory remarks lefties make about the capitalist system. What's more, most of them are still true with knobs on. But recognising the system for what it is doesn't mean we understand why it is still there after all these years, or, indeed, how to get rid of it.

Given the intensified class struggle, it is easy to believe that anything which benefits workers, must disadvantage bosses and vice versa. If you have never worked in industry, this sounds very plausible. It is rarely true. The sparring which has gone on over working hours is a typical case in point. Why do people work shifts for 24 hours a day for instance? Let's take a few instances where it makes sense. Take a blast furnace. You cannot close down a blast furnace. If it were to go cold, it and its contents would set solid and you could only revive it with explosive and then rebuild it. There are areas which require steam, and it would cost a mint to shut down the boilers.

One area I am familiar with is the rubber industry. From time immemorial, this industry has relied on steam. Not only tyre manufacture which heats its presses by steam, but any amount of autoclaved goods where instant heating is required you, need steam. Steam is suitable because a boiler actually stores heat in the form of steam.

However, I worked in a plant which had its heat supplied in the form of electricity because it was a large jobbing shop in which rapid heating was no requirement. Yet this shop, too, relied on 3 shifts for its running. Perhaps this was necessary because the machinery was so expensive that it had to be worked 24hours a day to pay for itself? Not at all. A few months of a workers' pay would cover the extra machinery to come back to an 8 hour day. Or was it a bank-up of orders which needed filling in an emergency? Not on your sweet Nellie. I worked there for 13 years and the moulding shop always worked 3 shifts during that time. This regimen was simply not dictated by necessity, but by custom.

When you look more closely at the call for “flexible hours” as often as not it is dictated by managerial perceptions as by any objective factors. I have in front of me an otherwise good article by an academic who attended a conference on sleep deprivation which comes to the conclusion that a lot of the remedies are available to workers – you can’t blame it all on the bosses. In short, if the boss says you have to work shifts, it’s up to you to find ways of coping with it even if it is only a whim. Here are some of his suggested remedies:

Go straight home after a shift, avoid the sunlight and sleep in a darkened room, make your sleeping areas as quiet as possible (try that in a house with kids), don’t use drugs to control your sleep cycle and so on. And all that to perhaps keep the local supermarket open 24/7. And why does it have to keep open 24/7 even if there are virtually no customers in sight? It’s the competition, stupid. All the other supermarkets are open, too. And who shops there? All the people who have to work shifts for similarly “good” reasons.

There is no way you could argue that this sort of corporate behaviour maximises profits. Most of it was introduced to kill off the corner grocer shop or convenience stores. But now they are nearly all dead, wouldn’t it pay to keep the supermarket shut and save all that lighting and air-conditioning? Shut your mouth and get on with the job. Or, if you are a student, go home and write a paper on “how working conditions have changed”.

It makes my blood boil to see how even unions have given in to generally quite unnecessary impositions of misery on workers on the grounds that this follows naturally on “technological changes” when in fact there has not been any technological change, merely a change in the distribution of power which enables the bosses to indulge their whims.

That all this affects not only the lifestyles of workers but their health and well-being is an additional reason for resisting these changes. It should not be the only one. The “need for workplace flexibility” is rarely dictated by circumstances; it is generally dictated by bosses’ egos and by mismanagement. Instead of “world’s best practice” we are inventing and going down the world’s worst concepts.

DIATRIBE 145 - Zheng He - Killer Of Myths

Reality has dropped a bombshell into western civilisation. Until recently there was a verse which went *in 1492 Columbus sailed the ocean blue* and we all knew that until Columbus graced the Americas with their presence nobody in that hemisphere knew that they even existed, Then they found out that they were actually Indians – Red Indians to boot. This thrilling news allowed them to die off at a great rate, which is one of the benefits of being discovered by an imperialist power like Portugal, which brings you not only contact with new forms of warfare but also with sundry new diseases.

In Europe this period was called the Age of Discovery, and Europeans went on discovering everybody all over the globe. It was obvious that the only people who could do the discovering were in fact Europeans, because they had the right colour of skin and had the sort of religion which supported the notion that lesser breeds should be taught humility, if necessary, by fire and sword, and that the discoverees should pay for this valuable lesson with any form of precious metal they happened to have lying around, preferably gold.

There was only one fly in this comfortable ointment. Every now and then someone would leave maps around showing large bits of the earth that hadn’t been discovered by Europeans, or bring tidings that areas like Greenland or Iceland or some of North America had been discovered by the wrong Europeans and even been populated by them. We could, however, cope with this, because they were really some of us. They weren’t nasty backward people like Chinese, for instance.

And now comes Gavin Menzies (no relation to Pig Iron Bob), a researcher who claims that long before the Portuguese, the Spaniards and Captain Cook, Admiral Zheng He. Zheng was a Muslim, a Eunuch from the age of 12, who was active during one of the Ming Dynasties not only made numerous voyages around the Pacific, but actually circumnavigated the globe starting in the year 1421. What is more, this Chinese navigation was not just spasmodic but resulted in regular trade at very high levels. Of course the Chinese knew all this long ago, and there were plenty of written records to prove it. But how could anyone trust them given their inscrutable nature? Besides, there was a century of isolationism when the emperors frowned on this trade and attempted to destroy these records. Nevertheless, as the remaining maps in Western hands showed, the seafaring knowledge could not be denied.

To be able to voyage to this extent and to trade in such volume as well as navigating with such great accuracy required some pretty highly developed technology. As for the size of the Chinese ships, they were truly enormous even by present-day Western standards, The biggest of them had eight masts and were well over 100 metres long. Their sails were made of bamboo and were permanently up, being turned to cope with varying wind conditions. Passenger-carrying ships had as many as sixty cabins and ships had crews of hundreds of seamen as well as hundreds of soldiers on warships. It is almost unthinkable that the people commanding these ships would not have known about problems like scurvy and how to avoid it.

The story goes about one of the Captains of the *Queen Mary* who when one of his hapless passengers referred to his vessel as a “boat” exploded “if this is a bloody boat, what does a bloody ship look like?” Referring to one of these Chinese floating cities as a “junk” is in the same class of terminology. Unfortunately, we know little so far about the sailors, soldiers, cooks and servants who staffed these vessels. As in the West, one hears a fair bit about the commanders and their structure. As is shown by the construction of the Great Wall, their organising skills must have been of a very high order. Naval architecture, similarly, must have been on levels quite similar to the best in the West to-day. We know there were shipwrecks; we don’t know how frequent they were or how severe.

We know that with Western naval discipline the most horrendous mistakes and idiocies were common. For instance, on one of the voyages which tested one of George Harrison’s early time-pieces, the Captain ordered a course which caused one of the sailors to cry out “That will put us on the rocks” (or words to that effect). The Captain ordered him to be hanged from the yard-arm at once, and the ship went on the rocks.

It would be good to know if the Chinese merchant fleet had similar idiots in charge; I fancy it did, it is almost obligatory with hierarchical structures. But they are not the only possible ones. This leads me to my real point. The whole of the world is populated by humanity of various ethnic origins. This includes quite inaccessible islands in the middle of oceans. The people who populated these spots did not have ships operated by hundreds of sailors; they had boats which, one supposes, sprang from their fishing activities and used navigation equipment and navigational skills which were around at the time these migrations happened. Indeed, these skills are not even peculiar to humans. Most animals have them; predators, birds, fish and even Monarch butterflies can find their way, often to places where they have never been but which somehow have been imprinted into their nervous system at birth.

I think humans have these instincts, too. It is a common experience amongst bushwalkers that before learning the use of a compass, you can actually get to a destination merely by concentrating on it. It has certainly happened to me in Tasmania in a spot, tens of kilometres from where I had ever been before. With training, these skills can be developed. Polynesian navigators undergo long apprenticeships starting in their teens and going on until their mid-thirties. They learn everything from ocean currents, weather patterns and bird presence and behaviour to going by dead reckoning, the behaviour of their domestic animals and, one supposes, sheer gut instinct.

Is there a qualitative difference between using a map with a Global Positioning System and using instinctive skills, if both of them get you there in the end? I think there is a vast difference, a difference which increases with the degree of technological complexity. With the GPS you are depending on your receiver and its batteries; you are; with the old US system, depending on numerous satellites, on their reliability and on the goodwill of Uncle Sam’s war machine to maintain the system. If you have the skills, as proved, for instance, by Captain Bligh and the men set adrift with him, you can, guided by memory and experience, navigate without map or compass to wherever you want to go through pretty tricky waters. Indigenous Australians can navigate on land with similar precision.

So, while we can agree that given enough resources every nation in the world can develop technologies at similar levels to the next nation, for a maximum of self-reliance and security you can’t beat human skills.

DIATRIBE 146 - Who Is Defrauding The Welfare System?

They are at it again. Who is at what? The government and its Hench-people, of course. What are they at? A rerun of the Australia Card, so-called.

You may well ask – what has this to do with technology? The answer is – everything. The powers that be have always lusted after the ability to cross-check all the personal details individuals supply to various agencies to weasel out whatever misdemeanours they think you and I could be blackmailed with. In the old days when ASIO checked up on Lefties (who says they aren’t still doing it?), salacious titbits were always in demand. If they could only do this with welfare payments.

Well, they can do it now. Thanks to the universal availability of electronic databases in every arm of government, plus the instant ability to access each or all of them not only at the click of a mouse but indeed the ability to write programs to do this automatically at the rate of tens of thousands per second, they can cross-check the details for individuals in a dozen data bases instantly.

But they can do better than that. They can collate all the contents of all the data-bases in one central location, or, if the wish, in several locations. Thus the concept of the Australia Card was spawned. Let’s stop there, for a moment. If you want to indulge your paranoia, you can do so right now. Who says it has to be the government who does it? In fact, every day we get phone calls from people we don’t know offering us things we don’t want at prices we can’t afford. Where do they get these details? Many of these calls come from overseas call centres thousands of kilometres away – how did the details get there? Every now and then you come up against some

credit agency which either will or will not give you a loan. Who compiles the lists which contain your credit rating? The answer is brutally simple. Nowadays there is no such thing as privacy. Even though you have a theoretical right to inspect private databases for your details and, if you so wish, have them deleted, how could you do that if you don't even know these lists exist, where they are kept and what they contain?

Lists are compiled from all sorts of sources, legitimate and fraudulent. Private individuals with access to databases of commercial transactions can illegally sell these at around \$10 per legitimate entry. But then who knows if the entry is legitimate? And while this sort of passing-on of information is illegal, who would be able to trace its origin? When you get one of these annoying telemarketing calls, can you ever discover how the callers got onto you?

However, let's get back to what was called the Australia Card. Why was it legislated for? The answer is that there is a universal assumption that people, mainly poor people, are rorting the systems, particularly the welfare system. There is absolutely no proof that this happens on a large scale. Actually, the reverse is true. Because the systems are so complex, thousands of people who are entitled to benefits never receive them because they are unaware of their entitlements. And the mass media assiduously foster the notion of widespread and expensive welfare fraud.

It is a sad fact that the lies about workers and about the unemployed are eagerly supported not only by middle-class drones in our society, but also by fellow workers, such is the power of the media. Hence, when the Hawke so-called Labor government floated the Australia Card idea initially in around 1985, there was considerable majority support for it from wide sections of the community. We must bear in mind that at this time Hawke was good mates with some of the richest shysters in Australia amongst whose achievements tax evasion ranked very high – what's more, they were proud of it. Here he was arguing that what had to happen to fix Australia's finances was to catch up with unmarried elderly people one of whom claimed to be a boarder in the other's house, when in fact they had an occasional cuddle and therefore shouldn't have collected individual pensions.

The reasons given for the introduction of the Card were mainly Tax evasion, welfare fraud and illegal immigration. But in the run-up the government published a brochure which gave the real purpose as the rationalising of all record-keeping about individuals by government agencies. "It is good for all of us and saves a lot of money" they said

Strangely, figures to back up the wild claims they made were not forthcoming. On the other hand, the Health Insurance Commission, the body chosen to administer the scheme, was surprisingly frank in advising the government that "it will be important to minimise any adverse public reaction". Yet while the government reluctantly admitted that even on their inflated figures there would be zero savings on welfare fraud, they still claimed – fraudulently - massive returns on taxation and immigration. They admitted that the scheme would in no way impact on organised crime or the "black economy".

What costs of installing the scheme were mentioned were ridiculously underestimated – most were disregarded. Bearing in mind that currently it is perfectly legal to have multiple identities in Australia, the imposition of a single identity would not be feasible, let alone affordable. A quarter of all Australians were not born here, and establishing their identity is either impossible or costly. Think of the cost on businesses required to verify transactions by demanding and recording the card. The list goes on and would fill many pages. So would listing all the impositions on privacy.

Thanks to a public outcry against the scheme, the government thought it wise to withdraw the legislation, citing as a convenient excuse the "discovery" of an "overlooked" bureaucratic problem with implementation.

Now to the nitty gritty. Annually, the Treasury loses literally billions in known tax evasion by the rich; indeed, the rich only pay tax if they want to. Mechanisms are known for discovering and retrieving these sums, but are carefully avoided. Remember that the late unlamented Kerry Packer, amongst the richest tycoons of this country, prided himself - and said so publicly – on not paying tax. Why, then, would successive governments of "both sides" of politics go to such lengths to introduce what appears from the outset to be a pointless exercise?

It's the ideology, stupid, as Paul Keating might have said. Our governments would not only punish the poor for stealing bread and sleeping under bridges, they would charge us millions for an advertising campaign to explain that these are the measures on which our future depends. And one of these days the people will wake up to the fact that these decisions are not unfortunate mistakes by well-meaning people, they are deliberate bastardry by repressive ideologues.

DIATRIBE 147 - Reshaping Your Telly And Your Bank-Account

Be kind to your old Telly, particularly if you haven't replaced it in the last few years or haven't augmented it with a digital set-top box. The Federal Government has been kind to you, recently, by extending the use-by date of the old faithful by a year to 2008, after which it will either have to go to the tip, or have to have the added and

dreaded set-top box. Most people – if they have the cash – will settle for the former, because it will be in the new wide screen format which most people will accept as inevitable.

Where did this new format come from? Those of us who had a bit to do with early picture theatres are aware that the old format, roughly 3x4 ratio, has been around a long time;. Actually, it goes back a couple of thousand years, to Euclid who called it the golden ratio because it occurs frequently in nature. The actual golden ratio, 1.618:1 roughly, is so pleasing to the eye that many artists chose it, subconsciously or deliberately, for their pictures for many centuries. When moving pictures first got standardised they settled on a 3 by 4 ratio which fitted into a round lens, but was a long way from Euclid's preferred format. The formats for still cameras would fill a book.

This 35mm movie format became widely accepted; however, it wasn't for the want of trying other aspect ratios. In the hundred years of cinema there have been no fewer than a hundred different gauges and screen formats. Quite a few of these were dictated by the nature of the medium. The only sensible wide screen format was Cinemascope, because the image on the actual film is almost square before being stretched to a ratio of 2.33 by a special lens, letting through a maximum amount of light. Others such as The European 1.85, meant that almost half the image on the film was obscured by black bars top and bottom, a terrible waste of light. My personal preference was 1.66, as close to the golden ratio as you could get.

Cinemascope's origin lay in the introduction of television. As the theatres emptied, and indeed cinema was officially declared dead, moguls had the bright idea that if blockbusters were presented in a format which could not be shown on television, the future of cinema could be assured. This was a serious mistake, because soon the screening of archived films on TV became a massive source of income for film studios. Because of this, it was cinemascope which fell into disuse. I remember entire Melbourne International Film Festivals where not a single film was in the 'scope format. This still left four other cinema formats to contend with.

The search for other formats on television continued unabated. Whereas you have to use special lenses to stretch an image for a wide cinema screen, a television image can be stretched electronically at virtually no cost. And while for many years the TV screen size was limited by the size of an evacuated glass envelope, current plasma screens can be made to almost any size limited only by the purchaser's pocket.

The drive for odd formats in cinemas is as old as the medium itself. Before the turn of the 20th century, a special Paris venue featured a balloon flight over Paris with twelve projectors operating under a "gondola" which accommodated the viewers. This allowed a simulated reproduction of the view from the balloon as projected on a 360 deg. surround screen. As one would expect, the images didn't match perfectly where they abutted, and the repertoire was strictly limited.

Later, D.W.Griffith used a standard sized frame masked in black on both sides to show soldiers falling to their deaths from a great height from the walls of Babylon. Abel Gance, in a six hour blockbuster used three projectors side by side and even a specially developed and patented stereophonic sound track in 1927 for his film *Napoléon*. If you can think of some technological cinematic improvement, someone has already done it. Anyway, the constraining of an image in a frame is an essential part of the graphic arts and comes under the heading of *composition*.

I think the current TV format trends are a disaster. Firstly, to present everything on a 16:9 (or 1.8 to 1) screen, nowadays the most common standard, is the worst of all possible choices for the most common content of TV material. In particular, the talking heads which dominate what normally goes for current affairs leave large slabs of the image blank or without meaningful content on both sides of the screen. Much of the dramatic material which originates from what were originally 4 by 3 cinematic images comes with cropped heads in the 16 by 9 format. What are we supposed to gain from these unoriginal and increasingly expensive gimmicks? With Plasma sets costing between \$3000 and \$5000 we have no difficulty in identifying what the sellers get out of it. But you and I?

Firstly, the large image is supposed to be impressive. If this were so, patrons would be queuing up to sit in the front rows of cinemas. There are about five or six parameters which determine the apparent size of a viewed object. They range from the angle the object subtends at the viewer's eye (which is what the screen size does for you); it also takes in colour (distant objects appear fainter and bluer), stereo vision for objects within thirty or so metres, overlapping of images, particularly during movement, perspective and so on. And if absolute screen size were so important, who would want to look at the tiny picture at the back of a mobile phone? Also in the catalogue of technological miracles is so-called 5.1 stereo sound, which the set can receive, but which few stations transmit.

Against this there are serious disadvantages, Firstly, few living rooms are large enough to allow you to sit far enough away to watch the large screen in comfort. It is even worse for kids, who often want to sit with their faces glued to the screen.

Worst of all is the power consumption. The big plasma screens consume a kilowatt of electricity, as much as a radiator. Those watching in summer will need another 3 kilowatts of air-conditioning to get rid of the heat. And the cost of all of this comes on top of the massive cost of the set itself. Presumably, you will also throw away a perfectly serviceable telly which no-one will want. It is already happening with computers.

All this would be tolerable if the program content were to improve to make use of the extra technology. Alas, no. As the technology absorbs more and more of your money, the program quality will deteriorate further. In particular, the Australian content will be more and more restricted to so-called “reality” television and similar rubbish. Repeats will abound. The pressure will be on for you to get into cable or satellite TV.

As I said, next year the Government will try to force you to get away from your old set and, at least, install a set-top converter. Operating this combination is not simple unless you keep tuned to the one station. Otherwise, keep the operating manual handy or employ some six-year-old to work the system for you. You will need one or the other!!

There is still time. Contact your Federal MP and point out to him/her that switching off the old analogue channels will benefit few, but hurt the poor and confuse many; particularly the elderly. Seeing that the powers that be have just decided to put off the format change, they can put it off further. For good or ill, TV has become an essential aid to many people and accessing it should not be deliberately made difficult at the whim of exploiters and technocrats.

DIATRIBE 148 - Where Has All The Water Gone? – Part II

This is not the first time I've talked about water – and it will not be the last time either. Water is simply the most important substance for life on earth. It is no coincidence that scientists who scour the heavens for planets we could take over once we have made Earth uninhabitable, firstly look for the presence of water. Water is a miraculous substance. In the narrow range of temperatures that are common on Earth, from minus 60 degrees to about plus 50 degrees, water is human-friendly. Bear in mind that the lowest temperature in the universe is 273 degrees below what we call zero, and that the maximum is millions of degrees higher if indeed there is a maximum, and it becomes clear that we are exceedingly lucky to inhabit such a temperate zone. Were it not for the anomaly of water, which means it is least dense when at 4 degrees, the world's ice would sit at the bottom of the ocean and we would all perish miserably. Actually, we wouldn't be here in the first place

The greater parts of our bodies consist of water. Blood may be thicker than water, but water is just the right viscosity for swimming in. Water dissolves many more substances than any other solvent. If we have any sense and we notice a spot of dirt on our clothes we will first try soap and water as a means of removing it, rather than reaching for organic solvents like petrol or alcohol. Water can put out fire, while most other solvents accelerate it. Even the most hardened drinker has to drink water sometime or other.

However, here we are primarily concerned with the ability of water to grow things. Plants and animals depend on water; they are the living things we also depend on in turn. Left to nature's dictates, plants and animals either adapt to the moisture requirements to which they are suited or move out whenever this environment changes to be unsuitable for any particular organism. We might call this the non-survival of the unfit. The earliest change to this rule came with the evolution of certain plants and animals which are able to modify their environments in major ways to make them more suitable to their lifestyle, by building nests, and, in the case of beavers, even building dams and cutting down trees.

Earlier human societies learnt to do the same. Human civilisations first appear in climates which present day societies regard as harsh and arid. These societies developed, several thousands of years ago, extremely clever ways of stretching what water there is to sustain quite extensive urban civilisations. This was done largely by using common sense and by co-operating with nature, rather than trying to dominate her.

With the advent of “modern” attitudes to nature and to technology all this changed. Judaeo-Christian ethics, in particular, saw humanity as having been created to dominate the rest of nature. Instead of trusting their native senses, rulers, temporal and religious, put their faith in books like the bible and the Qur'an. They could do this because earlier technologies had allowed their rulers to establish class societies which exploited the labour of others and could afford to be profligate. Where this showed up particularly badly was in the use and misuse of water. Wetlands were drained, rivers diverted and dammed. The creation of sewered mega-cities with their flushed toilets sent colossal amounts of often pristine water, loaded with valuable nutrients to waste into the oceans of the world.

The scale of water waste is well documented in a recent edition of *New Scientist*. It even rates a front page exposition. According to this – and it is doubtlessly correct – it takes 20,000 litres of water to produce one kilo of coffee, eleven thousand litres of water to produce one of McDonald's so-called quarter pounder, and five thousand litres to make 1 kilo of cheese. We can draw up a similar table for how much water it takes to make a cotton shirt, a bed-sheet or a woollen coat, let alone a blanket.

This latter part of the list is of special interest to Australia, because we produce these and other equally water-thirsty products on this, the world's driest continent. And unlike the ancient Middle Eastern people, whose underground Wadis were channels which minimised evaporation and picked up groundwater, much of our irrigation water runs in open channels, where nine tenths of it gets lost to seepage and evaporation. As the water

evaporates, the salt it contains stays in the paddocks to poison the land. Nor do our major rivers, such as the once mighty Murray, now carry enough water to re-absorb much of this salinity.

So far, I have only used the data in the *New Scientist* article. But then, there are good excuses for expending water on food and clothing which are essentials for life. After all, wildlife and forests unexploited by humanity also use water although not as wastefully. But there are other less obvious water uses for which there are no excuses. If you are at all familiar with the country-side around Roxby Downs copper-uranium mine, you will know that it is one of the driest spots on earth. You also may have visited, if you had permission from the traditional owners, some of the so-called mound springs in the area. These mound springs are at the edge of the Great Australian Artesian Basin. They are oases which support unique fauna and flora in an arid countryside. They have flowed for thousands, if not tens of thousands of years.

The mine owners built a large pipeline, about 100 km long, which daily draws about 15 million litres for mine use from a borefield which accesses the Great Australian Artesian Basin. As a result of the withdrawal of this huge amount of water, and of an equal amount for the Roxby Downs Township which houses the mine's personnel, and looks like a bit of green suburbia rather than a desert outpost, the flow of water from the springs has been greatly depleted, and some have stopped flowing altogether. The mine uses this water for its industrial processes; it is then drained into ponds which supposedly allow it to evaporate and thereby concentrate the pollutants. Time and again the containment seals have leaked allowing hundreds of thousands of litres of polluted water to escape into the environment. For all we know, it may be leaking prodigiously right now.

Currently, plans are afoot to greatly increase the output from this and other uranium mines, to meet the export plans which have been hatched in recent days. Managements have made much of the fact that in future some greater percentage of water for these extensions will come from recycling, and at least one environmentalist has given Roxby managers a pat on the back for doing this. Sceptics like me, however, point out that the huge amount of water required in the future simply cannot be taken from the borefields, so recycling will not be an option but a necessity. Also, virtually all the energy going into these massive operations will be supplied by fossil fuels; so much for "clean and green" uranium power.

This is only one of the many ways in which our industrial system wastes the world's most valuable and increasingly scarce resource – clean water. Perhaps the crassest is the manufacture of silicon computer chips, where the manufacture of a chip weighing a couple of grams can require hundreds of litres of water which emerges polluted and useless for drinking, although recycling could often be possible. Interestingly enough, the electronics industry is not unaware of this particular problem. A committee has been established in the US to investigate ways of reducing the amount of water required in semi-conductor manufacture. As one of their reports ruefully admits, the processes they are developing to achieve these savings are not likely to be turned into practice if they don't at the same time show some financial returns to the chip manufacturer. Nor is this a problem for the distant future – I remember reading some years ago about a US site where wells had been poisoned and groundwater polluted in the vicinity of a major silicon chip manufacturing plant. And while this problem can, of course, be reduced by technological fixes, consider the number of workable computers rotting on garbage dumps and the millions of perfectly efficient cell-phones discarded daily for their planned obsolescence, and you can easily see where real water-saving strategies could be implemented.

Given the profligacy with which water is wasted, no wonder they want to privatise the Snowy for private profit. Also, they are selling the precious stuff in bottles, the contents of which carry, in proportion, more pollution than the stuff that used to flow from our taps...Whether our water is used in unsuitable crops or as part of our mineral exports, our water shortages at this stage are due to our social system, not to natural causes.

DIATRIBE 149 - Dispensable Goods – Expendable Workers

A recent SBS documentary tried to give us an insight into the conditions of Chinese young women workers assembling components for Nokia mobile phones. Unlike with British workers of the 19th century, the inspectors sent out by the parent factory find little to complain about. They are there specifically to assure mobile phone purchasers world-wide that there is no undue exploitation in this particular factory, which is a tiny part of the chain of workshops manufacturing Nokia products. The factory is almost clinically spotless, although nasty tongues may point out that this may be for the benefit of the product rather than its producers.

It may be precisely this clinical aspect that makes the place a horrifying experience. The workers we are shown are all girls, presumably from country districts, who live in the barracks which stand in the factory grounds and which may well double as factory space on another floor. The workers, all in their late teens or early twenties, are assembly-line fed, at their own expense, but have no visible dining room. They may be paid at the minimum daily rate set by the Chinese government; however they have to work 10-12 hrs to get this. As in the 19th century English factory, they get fined for mistakes, for marginally late starts, and even have their pay docked if, for no fault of their own, such as machine breakdown, production is held up. Pay rate, before deductions, is the equivalent of \$3.00 per day.

Supervisors are all male. The only worker to speak directly to the TV crew retails the horrific story of one of her fellow slaves who finally got mad at her supervisor's maltreatment of her and chased the supervisor through the factory. The worker is shown to think that this event was embarrassing. Of course, the girl in question was instantly sacked. The supervisor is still there.

One assumes that the supervisory visit by head-office personnel was telegraphed well in advance. The questions asked are quite innocuous, the only complaint by the inspectors relates to one instance of food being stored near chemicals. Other questions of health and safety don't arise; for instance the ever-present fire danger in dormitories where a minimum of 4 young girls inhabit a cubicle the size of a western child's cubby.

We never see the entrances to the building being checked, nor would this instil any confidence because after all they could be locked mediately the inspection is over. In numerous recent instances of factory fires in China, young women were burnt alive behind locked doors. In one such fire recently 81 girls perished. Such horrors are so common they hardly ever get reported here. Why do these women have to be kept locked up? The answer is obvious. Existence for these workers is so alienated and awful, they have to be prevented from running away. We cannot tell whether this is happening here. Nor are we ever allowed to meet male workers who, we are told, work in another building.

The management in this workplace divests itself from the responsibility of caring for any of their workers that might fall pregnant. The managers say this is not a problem. Under the Chinese one-child policy, forced abortions are the norm. And as there are no skills required, each girl can be replaced at a moment's notice. By the look and behaviour of the male supervisors, one of whom is English, it would be surprising if sexual harassment were not common, with unwanted pregnancies the order of the day. One observation of the visitors was enlightening: She was questioning, but only rhetorically, why the owners had to break the law in underpaying the workers, seeing that wages were such a small part of production costs that paying the extra would only result in a slightly more than one percent increase in overall costs. The question, which applies equally in Australia, was never answered, just as it never receives an answer in Australia.

Just as with animals locked up in old-fashioned zoos which are safe from predators, you could argue that these workers are vastly better off than they were before the Chinese revolution. However, a moment's thought will show the callousness and stupidity of this argument. The stupidity is that the whole system depends on a surplus labour available from the country-side. If this should disappear, as it is bound to do in time, the basis for the present set-up will vanish. This, of course, will not affect the exploiters who will simply relocate to some other country with equally repressive labour laws where unions are non-existent and where workers, particularly young girls, can be used as factory fodder from childhood until their fingers are no longer suitably nimble and they can be discarded to whatever miserable existence the state and the system provides. Nor will it adversely affect firms like Nokia which will have to automate the processes which are currently done in primitive and labour-intensive ways.

A word here about this aspect of the operation as shown in the documentary. Mobile phones are amongst the most hi-tech products the world currently boasts. The bulk of their production simply cannot be done by human labour; it requires sophisticated and precise machinery. You see this immediately you take one of these phones apart. What is being contracted out to the sweatshops are the bits which have not yet been automated. As an example, the one operation we are allowed to observe has two girls measuring out lengths of cable, rolling them up and placing them in the cardboard box in which they will be delivered to the customer. Nor is this the only team doing this boring task; we see several tables behind them doing precisely the same. 70 years ago, my first job as a labourer in a Melbourne electronics factory was to operate a machine which cut wires to length and stripped their ends. To see this job performed manually in the 21st century by numerous people is bizarre. It would not happen if the workers were paid a half-way decent wage, because it would then pay to develop the simple technology to mechanise these operations in the same way it has already paid to mechanise and automate the rest of the processes.

A further reflection on this operation is that the Chinese state, which is theoretically run by a so-called Communist Government, has effectively isolated itself from the fate of its wage-slaves by handing their employment over to the subcontractors shown in the film. Nevertheless, seen on this level, this operation is almost tolerable. The inspectors are forced to admit this, although we are told, in the end titles, that shortly after handing in their report they left Nokia for a more human employment. However, seen from the point of view of a human being, the situation is horrific. Firstly, there are the unasked questions: What happens to these young women when the factory has finished with them? Had they stayed in the country, even under the most miserable conditions, they would have been part of an ongoing social structure; here they are left with no future, no skills, not even the barest means of subsistence. They have no understanding of the products they are turning out. There is no attempt, from what we can see or infer, to supply any skills training, education or social infrastructure. It is a case, pure and simple, of bleeding a population dry and then getting out. You might call it technological imperialism.

Also, for me, there is an element of *deja vu*. I can still clearly remember working in a factory about the same size as the one shown in the doco. I can remember how when a newsreel crew came around to make a film about the operation, we were issued with dustcoats which were promptly collected after the shoot and passed on to the

next department. I can vividly recall how everybody who turned 18 got the sack automatically as their junior wage had to be upgraded to the adult wage. I can also remember how when some of us applied for jobs as line checkers, we were told that we did not have sufficient skills for this important job and how, a few weeks later, in a wages case before the arbitration court involving line checkers, the bosses argued that absolutely no skill was required for this task.

Finally, think of what these Chinese workers are being exploited for. They are making mobile phones which kids in Australia toss into the rubbish within months of their manufacture as the particular model goes out of fashion and is replaced by one of different colour or running on a different frequency. And what aspirations are there for the young workers? I presume that they, too, can aspire one day to own a mobile phone, join the morning and evening peak rush and choke to death in the polluted atmosphere shown elsewhere in the doco. I bet this is not what Chairman Mao was aiming at when he and his comrades laid their lives on the line during the Long March.

DIATRIBE 150 - Residential Disasters

Our governments are hell-bent to force all of us to own the houses we live in. They would, of course, never admit this. Actually, they are not even likely to be aware of it. The power-brokers would simply tell us that home ownership is a superior life-style and is in line with what everybody wants. Indeed, in our society this has become so ingrained that when I looked up Google (as one does) for what they had on the history of home ownership, on the first page of references there was only one solitary entry that related to my key words; all others tried to help me to achieve home ownership.

Of course, if you were a landed gentleman in Britain, it was understandable that you wanted to have a permanent abode for you, your family, your horses, your hunting dogs and your servants, in that order. Hence the old saying that an Englishman's home is his castle (Englishwomen didn't count). Once the Industrial Revolution had taken hold, just as tradespeople aspired to turn up at union meetings in a three piece suit, so they aspired to own their cottage, be it ever so humble. This didn't mean that there were no circumstances where their tenure could be interfered with by the state, by the armies of the enemy, or, indeed, by the bank. Under the current anti-terrorism laws, your home gives you no protection from arbitrary interference.

In Europe, individual home ownership was nowhere near as widespread. This is why European cities look so different. Instead of rows of cottages as in Britain's industrial towns, Europe's older towns consisted of solid blocks of multi-storey flats or apartments, often with common services. One water tap and one toilet per floor, no bathroom even per building. Not that Britain's 19th century industrial cottages had any of these facilities either. Nevertheless, people who lived in them as often as not aspired to own them.

In general, all our cities are based on these two models of habitation, both of which are an extension of the idea of a "town". Once upon a time, a century ago, London with a population of six and a half millions was the world's biggest city. Today, it is not even in the league of the 20 biggest cities, and Tokyo holds the record with some 34 million inhabitants. The questions are – is this natural and, if not, can it be reversed?

Villages and smallish towns are natural and sprang up everywhere. Clearly, as civilisation proceeds with its almost inevitable specialisation into various trades, it becomes economically attractive to group trades and commerce together to reintegrate what was once concentrated within each farm and homestead. On the other hand, certain activities would remain tied to a locality; mines and mills were typically part of local communities.

Railways changed all this. Activities could now be grouped around administrative centres. As states developed into largely military structures, the superstructure required the concentration of administrators and hangers-on of urbanised aristocrats. This phenomenon can already be seen in ancient Rome and Alexandria. Urbanisation also played a large part in Mexico, in China, India and Japan to name only a few.

This sort of development seemed, to the cities' inhabitants at least, quite natural. You could reach every part of such a city on foot, or, if you were wealthy, by horse-drawn carriage or litter. Food and other supplies could be drawn from the surrounding countryside; you could dispose of waste and your dead within the city limits, you could even build a wall around it and defend such a city against siege by enemies. Most citizens were proud of their cities and tended to be parochial about them.

These reasons for the existence of early cities seem to me light-years away from the current development of what is now called the Mega-city, which is based on rampant capitalist industrialism and its financial base. It also depends on modern technology to an increasing extent. This has turned all the positives, or at least most of them, into draw-backs. Have a look at our list of advantages, and you will see what I mean.

Take the siting of workplaces. The worker of today can hardly ever walk or ride a bike to work. The placing of cities on rivers has no relevance other than as a means of polluting them. Bear in mind that cities were once placed across rivers to provide water for drinking, washing and power for water-driven mills. None of these functions exist to-day. Drinking water has to be taken, often for tens or even hundreds of kilometres, from artificial water storages. Washing of clothes and bodies and even watering of plants and washing of cars and

concrete surfaces is routinely done using drinking water except in a handful of cases brought about by the shortages caused by the old profligate waste. Even sewage is disposed of using drinking water to flush toilets.

But the urban stupidity really escalates when it comes to the central business district of the “modern” city. The day when the CBD was the hub of a city has long gone. Present-day communications are such that while it would be quite feasible to shift commercial activities into suburbs, instead current labour prejudices demand that they be moved to India or China. Our CBDs have simply become sinks for capital investments. Why are city high-rise buildings in the CBD so valuable? because that’s where all the other valuable buildings are. Why are they high-rise? because you don’t want to build a low cost building on a pricey bit of land. And why is the land so pricey? because it is in the CBD where all the pricey buildings are. And why does a bank or insurance company want to build 50 storeys high? Because the law says that a percentage of their capital has to be invested in so-called bricks and mortar even though there is buggler-all of either bricks or mortar in a modern office building. And so it goes on.

But it doesn’t stop there. Our residential planning is equally stupid. Our old workers’ and miners’ cottages have expanded in direct proportion to the shrinking of our families. Our domestic edifices have to, once again, have a second story even if most older people now have difficulty climbing up to it. We need access roads which take up a large percentage of our land. We need massive energy expended, once again, on lighting, heating and cooling because our houses have to be surrounded by floor-to-ceiling windows, preferably north-facing.

There are voices of dissent. These are usually architects whose “modern” constructions are almost invariably enormous, have no storage space, occupy a hectare or two of what used to be prime agricultural land and cost 20 years’ worth of a normal person’s pay to put up. In their spare time, these professionals write articles telling us we should embrace high density living. We saw it all in a TV doco on SBS recently. Whom the gods wish to destroy, first they make them mad. We are getting there.

What we need are not better architects, but a human social system.

DIATRIBE 151 - More About The Real Soybean Disasters

For years well-meaning environmentalists have campaigned against the genetic modification of soy beans, which has made fortunes for the major companies pushing it. The genetic modifications we are talking about do not, as most people believe, relate to producing pest resistant strains of soy beans, but they produce *pesticide resistant* crops, the so-called Round-up Ready variety, which allow farmers to pour on pesticides in much greater quantities than advisable to plants which would otherwise not tolerate these chemicals. The manufacturers of these chemicals get a double rake-off – from selling the seeds (which have to be bought every year) as well as selling the pesticide.

The most frequently raised objection to GM soy relates to the possible harmful effects in the human consumption of soy bean products. This has recently gone up by leaps and bounds particularly in First World countries. Objectors to GM were gravely concerned that GM soy may indeed have deleterious impacts on people consuming it. Great stress was laid on every sign of such effects.

Unfortunately – from the point of view of the protesters – such effects in humans have been few, enabling the protagonists GM to raise the claim that objectors were needlessly and pointlessly “crying wolf”. This is a great pity. The impact of GM soy has proved to be both wider and deeper. While, in what we call the West, and locals call the North, we have been beneficiaries of the relatively benign side of the GM revolution, the South, in particular Brazil, has been devastated. Huge soya farms financed by Cargill, the largest privately owned company in the world, are the rainforest’s new worst enemy.

The scars seen from the air are unmistakably man made. Hard-edged squares and rectangles, hundreds of acres across, hacked and burned out of the Amazon rainforest. The dark green of the canopy is lacerated with thin red lines - the illegal dirt roads that stitch together these giant clearings. Seen from the air, this fearful symmetry marks out the battle lines of an invasion that has seen the humble soya bean emerge as the greatest threat to the world’s most important rainforest. On the ground, what was once a thriving ecosystem supporting at least 300 tree species for every hectare, is now a wasteland. Dead roots and dry grass crunch underfoot and the breeze throws up dust from eroded soil.

Three hours’ drive outside the city of Santarem in Para state, along dirt trails struck by illegal loggers, you arrive in a vast monoculture inside the Tapajos National Park. Soya fields laden with the dry brown seed pods stretch in every direction. The Amazon basin is home to one in 10 of the world’s mammals and 15 per cent of the world’s land-based plant species. It holds more than half of the world’s fresh water and its vast forests act as the largest carbon sink on the planet, providing a vital check on the greenhouse effect.

Brazil has overtaken the United States as the world’s leading exporter of soya. The protein-rich bean has become a profitable link in the processed food chain and 80 per cent of world production is fed to livestock.

Brazilian soya beans are feeding Europe's growing hunger for cheap meat substitutes, and have overtaken logging and cattle ranching as the main engine of deforestation.

This is Father Edilberto Sena's parish. The fiery local priest has emerged as a fierce critic of the land-grabbers, loggers, ranchers and agribusiness multinationals pushing further and further into the rainforest. Three years ago, the agribusiness giant Cargill, the largest privately owned company in the world, opened a soya port in Santarem. And Father Edilberto has set himself on a collision course with the Minnesota multinational that he says represents the worst of rapacious capitalism. Father Edilberto has used the church-funded Radio Rurale de Santarem as a means of fighting back against the incursions of the illegal loggers, ranchers and soya farmers, who in turn supply the grain giants. "We are small and we are fighting multinationals like Cargill - people who are using soya as a commodity. I'm sure there are at least 200,000 listening. Our objective is to educate the people, provide critical and objective news. I don't need a uniform," says the outspoken priest, who eschews the Catholic garb for a green polo shirt and an indigenous necklace. "My uniform is my face and my mouth. People know I'm a priest."

It is less than 18 months since another rainforest campaigner and champion of Brazil's rural poor, Sister Dorothy Stang, was murdered in broad daylight further east in Para state, in the city of Anapu. After death threats, the US-born, naturalised Brazilian nun was assassinated by gunmen allied to illegal ranchers.

Although this report, which initially comes from the UK *Independent* Newspaper, does not specifically refer to GM soy, it is precisely in such areas dominated by US agribusiness where GM soy finds its greatest application, because this technology replaces skilled human labour with machines and chemicals. Even if this capital intensive approach doesn't actually save money it suits the ideology of the corporate exploiters who have taken over in that neck of the woods as they have elsewhere.

Other aspects of GM technology initially highlighted by GM opponents are also coming to the fore. Apparently, the insect pests against which Round-up was originally effective have now mutated sufficiently to make the combination of Round-up and GM soy uneconomical. This may well bring a wry smile to those who said I told you so". But it hardly constitutes a victory for any of the indigenous farmers who were driven from their land into the monstrous cities where they and their families are hungry and homeless, or for the species wiped out, or, indeed, for us whose children will have to bear the now irreversible effects of rampant global warming.

This sorry tale also illustrates, once again, how the scope and details of the destructive effects of rampant commercial technology often cannot be predicted even by people who oppose it. Technological optimists often accuse us of simply resisting technological changes on principle. At this stage of economic domination this could be seen as a good principle.

DIATRIBE 152 - Time On Our Hands

All of a sudden our newspapers and magazines are overrun with ads for mechanical timepieces. I wouldn't bore you with yet another instance of consumerist stupidity, but this craze is so typical of our society that there is some point in analysing it a bit more closely. An added reason is that the history of time-keeping illustrates the class nature of technological development.

Mechanical clocks are perhaps the most ancient of all useful machines in western society. Right from the beginning we have to separate clocks as an item of everyday use from clocks as a form of ostentatious display of wealth.

The first life-and-death application of accurate time-keeping was in navigation of the high seas. While latitude – the distance from the equator – can easily be determined by a sextant using the sun or stars, longitude - the distance around the globe that you have traversed since leaving your home port – is another matter. It can only be kept track of by having an accurate time-keeper on board.

That's where we come up against the importance of political power in science and engineering. When King Charles II offered a very large prize by the values of the time for anyone who could determine latitude aboard ship with a high degree of accuracy, this miffed the then Astronomer Royal, a chap by the name of the Rev. Maskelyne, no end, because it cut right across his domain of power. His chagrin increased when a simple carpenter by name of John Harrison offered to solve the problem by means of a clock when Maskelyne was convinced that the only thing accurate enough was the motion of the stars and their satellites. This required complex star tables and observations which were difficult to perform on the deck of a rolling ship. Even after Harrison had built and exhaustively tested clocks which met the conditions of the King's competition, Maskelyne and others who were also competing for the 20,000 pound prize moved heaven and earth in the astronomical sense to "prove" that mechanical clocks were not to be trusted. Ultimately it took a petition to the then King George II to get the prize in the form of a grant rather than the well-deserved award. Even then, Maskelyne claimed that Harrison's "blasted clock" had robbed him of the financial reward which he felt was his due.

There was no great difficulty in constructing an accurate clock as long as it was sited on a stable base. Long before Harrison built a ship's chronometer he had built what we would now call a grand-father clock and those in the trade call a long-case clock. These were made entirely from wood, not surprising given Harrison's trade, and achieved an accuracy of better than one second per day. This gave Harrison an understanding that such accuracies were possible and what was needed were ways of overcoming the constraints of a ship's movement and the temperature and climate changes that long voyages entailed. Harrison himself based his work on Galileo's discovery that as long as a pendulum's swing was limited in excursion, it would take a precisely defined time unaffected by the excursion.

It is notable that 300 years later Sony's Walkman relied on Harrison's principle of balancing two counter-rotating masses to stabilise the speed of a pocket tape player, something which was again thought impossible. In the process of Harrison's development of the chronometer he also came up with the roller bearing, the notion of temperature compensation by the use of bimetal, and the use of unlubricated bearings. I think he also developed the concentric display of hour and minute hands. These were used in his #4 and #5 chronometers, which indeed were totally similar to to-day's large pocket watches in appearance.

During the time the "Board of Longitude" was dithering over accepting the Harrison approach to the navigation problem, hundreds of ships were lost and thousands of sailors died due to faulty navigation. In at least one instance a captain set a course which made an experienced sailor cry out "You are heading for the rocks", which led to the captain instantly ordering him to be strung up on the yard-arm for insubordination and the ship went on the rocks. Whether navigation or time-keeping method it was and is a matter of who proposes a course of action, rather than whether it works or not, that decisions in a class society depend on. This was well illustrated by one management article I saw which defined the managers' sole job as "seeing that their orders were carried out". Presumably it was irrelevant whether these orders were sensible or defensible.

Let me get back to the beginning of my diatribe. Right from the start of Harrison's work on chronometers there was interest in his models by the wealthy and the titled who also made up the audiences for the displays of increasingly complex automata which showed the skills and ingenuity of the craftspeople who built them, and the wealth of the rich who employed them. Harrison's first timepiece was indeed worth watching with its gears and oscillating levers. Indeed, his timepieces not only marked the beginning of safe and regular navigation, it also marked the start of industrial capitalism. For the first time in history it became possible purchase labour power by accurately measured hours rather than by its output in terms of goods made. From this it became "obvious" that labour intensity was to be one of the deciding factors of "efficiency", and that in future the time clock was to be the most important piece of machinery in the workshop.

As for the timepieces themselves, they developed a life of their own. The railway-man's pocket watch showed that you could make an accurate time-keeper cheaply. This was followed by self-winding watches in which the motion of the wearer's wrist supplies the power winding the main-spring. The battery-driven quartz watch was only a step forward in that the motive power for the oscillating movement which regulates the display no longer comes through the gear train which drives the hands. This allows improved accuracy.

So what about the heavily advertised wrist watches of today? They are crazily priced replicas of the 1940 models, with gimmicky changes or no changes at all. One of them is simply advertised as such a replica; Omega shows, in some ads, the balance and hairspring details which demonstrate that in order to regulate the movement it has to be disassembled to make the balance accessible every time you wish to adjust it. It also has a funny twist to the hairspring which in theory improves accuracy but has never been proved to do so in practice. The only thing truly novel – the five figure price.

DIATRIBE 153 - Health Fads

When the Vietnam War was no longer the most important item on the agenda of the Left, US writer Barbara Ehrenreich suggested that, in the minds of some of the disappointed lefties, preoccupation with health and health fads would take over. There was certainly evidence of that: Take the extreme case of Jane Fonda who blended herself seamlessly into the financial framework of capitalism by running health academies and writing on the subject. She managed to have a marriage to right-wing media tycoon Ted Turner. In an earlier life she was known as "Hanoi Jane" by her detractors for her support for North Vietnam.

Not that there isn't a lot to criticise in the health regimen of Australians. Most of us haven't adjusted our food intake to our reduced physical exertions. And what food we eat is no longer the simple fare our forebears were used to and which no doubt would do less harm and more good to us than the processed junk that fills most of our supermarket shelves.

Our other "problem", if that is what it is, is that we live too long. Many of our disorders happen in later life and simply suggest that our bodies have gone past our use-by date, an age where in our more natural state we would have long been eaten by other meat-eating creatures in need of sustenance. The skeletons found in archaeological digs rarely show signs of having succumbed to old age; when they do, they are often of people

who were racked by arthritis and other degenerative diseases.

Given, however, that we are prone to have a limited life-span, and that most of us do our darndest to make sure that we don't reach it, it isn't surprising that people want to prolong their lives, and ideally they would like to have a pill to do it for them. Unfortunately, such remedies aren't yet available. This doesn't however stop whole industries from getting rich on making us believe that their product is the elixir of life, regardless of whether that product is a pill or some fancy food or an exercise machine complete with personal trainer.

One offshoot of these industries is a branch of the publishing trade which scours the world for the latest fad diet which will make you slim and/or healthy. At this moment, that is. Tomorrow it is bound to be something else. The problem is that both suggestions are likely to prove wrong; indeed, the opposite of each may turn out to be true.

The problem with all science, and particularly medicine, is that from an early age we are indoctrinated to believe that there are two types of facts one is an ordinary fact and the other is a so-called scientific fact. In the final analysis there is no such thing as a fact; every observation has an element of uncertainty. But when we are talking food and nutrition we are not, in general, talking about scientific observations alone. We are often talking about individual views which are untested and often cannot be tested except by experiments which would be grossly unethical. Quite often, though, we are fooled by advertising campaigns which are carefully designed to conceal the truth. Particularly when it comes to processed foods and patent medicines, some of the ads are so over the top as to be ludicrous.

Luckily, there is now far more scepticism regarding extravagant claims regarding health. After years of being told that, variously, it is carbohydrates which are killing us, and then finding out that a carbohydrate diet is just the thing that keeps you slim, we are likely to become less than impressed. This sort of spurious information coming from "experts" is particularly prevalent when vested interests are involved.

I bet that, like me, you were always convinced that modern medicine was entirely based on unimpeachable experimental science. It comes as a bit of a shock, therefore, to find that there is now a stream called "Evidence Based Medicine" which sets itself firmly against what may be called "expert based". In other words, people are questioning even those ideas which emanated from sources which they previously accepted without question.

While most of us welcome this sort of critical attitude, particularly towards politicians and other sales-people, it has its downsides. When we treat every claimed scientific advance as snake-oil, it is a short step to treating all snake-oil claims as worthy of attention. It is no wonder that beliefs in all sort of religious fundamentalism and in flying saucers and other unidentified flying objects are proliferating. When the world is full of conspiracy theories, and when all serious reporting sounds like a conspiracy theory, we reach a state of confusion which is helpful only to the power-brokers.

So, what are we to do? In the case of food fads, the answer is simple. Our forebears had, by and large, simple diets which worked in the areas where they were developed. This goes for foods as complicated as Cycads where complex food-preparation was developed by so-called primitive people, food preparation without which the plants are highly poisonous. Natural foods range from most of the meat and plants we eat to highly specialised diets such as the blubber eaten by the Inuit in the Arctic. In all cases these diets evolved together with the lifestyles of the people practising them. Whenever changes are made our diet without a change in lifestyle, this happens at our peril. A typical example is breast-cancer in Japanese women which was at a low level until Western eating habits were introduced on a large scale.

Nowadays, their breast-cancer rates are not dissimilar to those of the West. What is more, we cannot even be sure that this health change is due to the change in diet. Nowadays we introduce so many changes over a short period, we exchange the water, the air, we introduce thousands of new chemicals into the environment every year and we even modify our food plants genetically. Much of this is done for economic reasons; all of it is done over a short time-span which makes it totally impossible to separate the effect of any individual change in sufficient time to allow our habits to be modified in accordance with our experience.

I feel that the tinkering with individual aspects of our diet will go on ad infinitum while there are food processing corporations in the market. Meanwhile, the fact that few of us do physical work for a living, that we are destroying our biodiversity and that we allow our lives to be dominated by "experts" from multinational corporations will tend to lower our enjoyment of life at a time when our technology promised to eliminate a great deal of hunger and disease from wealthy countries. As for poorer countries, their access to food and clean water has never been worse.

DIATRIBE 154 - Let's Hear It For The Animals!

A recent doco on SBS investigated the uncanny ability of dogs to analyse their environment using their noses alone. This ability is hardly news. From time immemorial hunter gatherers have kept dogs as companions because these dogs had abilities which assisted humans in their hunts, not the least being a sense of smell which is some ten thousand times better than that of humans.

Let me digress a little here. Humans are not very good at anything much when compared to other creatures. We can't run as fast as a deer or a big cat, we can't see as well as a falcon or eagle, our Olympic swimmers' speeds through the water are laughable when compared even to a goldfish, let alone a dolphin or a shark. We can no longer move through the trees like monkeys, we cannot find our way like a homing pigeon or a cat or dog. Indeed, when it comes to this latter ability of finding our way home, we haven't even much of an idea how a bird with a pea-sized brain does it, or even more amazingly, a bee with a brain the size of a pinhead. Perhaps the bee doesn't even use its brain for direction finding. And while a squirrel or crow can remember the separate places where they buried thousands of nuts to prepare for winter, we find immense difficulty in finding our car keys ten minutes after we dropped them somewhere.

Once upon a time our physical abilities may well have been better than they are now, but evolution instead endowed us with a massive brain which ought to enable us to outwit creatures. Ought to, that is. Instead, humans, at least in recent millennia, instead of marvelling at the abilities of other creatures, have wasted their time in evolving ways of kidding themselves how clever they are. Instead of outwitting other creatures, we concentrate on outwitting each other.

There are two ways in which we can try to emulate the superior senses of other creatures. One is our ability to make superior tools to augment our limited abilities. And the other was to associate ourselves with plants and animals which were of use to us. Both of these are also not exclusive to humanity; vertebrates and even insects manufacture tools and do farming, and associate with other species for mutual benefit. But these are two areas where we can claim to be superior to other species.

Going back to where I started, the doco I am talking about detailed the experiences of a young woman whose dog was able to smell a normal-looking pimple on her leg which turned out to be cancerous. It nearly went berserk trying to lick it off. Now you could argue yourself blue in the face over whether the dog actually knew that the growth was malignant; it certainly knew it was different from other similar-looking spots on her leg.

I have no difficulty accepting that a tumour would smell differently to a pimple. I would also not waste my time investigating whether the dog's actions were motivated by altruism, simple curiosity or an attraction of another sort. I am sufficiently selfish to immediately jump to the conclusion that here is a good way of detecting one form of malignancy.

To be fair, many of the scientists in the doco took the same line of investigation. Surely it is not a big step from our training and use of dogs to sniff out everything from drugs to explosives, to search for buried bodies alive and dead, and to warn us of dangerous situations of various sorts. Let's face it, no-one has even got near to developing a device such as a gas chromatograph as sensitive as a dog's nose. The French use pigs to sniff out truffles, we use bees to find honey for us from goodness knows where.

The scientists following the clues contained in this experience discovered that men's urine could be used to detect prostate cancer, and, it is to be hoped, will continue to follow these clues to detect other cancers and perhaps other quite unrelated disorders.

But don't hold your breath. Much of the rest of the doco concerns itself with discovering how good the dogs are, or to be more specific, how often they are wrong. It reminds me a bit of the old shaggy dog story of the outback traveller who found a lonely drover playing chess with his sheep dog and naturally expressed his surprise. "Nah" said the drover, "he isn't that marvellous. I can beat him most of the time".

In the same vein, there is at least one doctor who desperately wants to prove that the dogs' ability is unsuitable for clinical work because it isn't sufficiently reliable or repeatable. Now, you or I would set to work to improve the dogs' abilities by investigating the best way of utilising what the dogs can do or how they can be trained further. But, while this is standard practice for guide dogs for the blind or sniffer dogs in the noble cause of drug detection or anti-terrorism, it is not shown here in the service of health promotion. Indeed, there is this one obnoxiously arrogant doctor whose purpose seems to be to debunk the notion of having a mere animal in his surgery which tells him what is wrong with his patients.

What has this to do with technology? It is clear that no modern doctor will reject X-rays, cat scans, or a battery of other diagnostic tests all or most of which rely on interpretation by humans who may well be as fallible or more fallible than a dog. What's more, dogs would not have ulterior motives, and – oh bliss – would not demand better pay and conditions. They may, however, expect appreciation for a job well done, something that the present government would never concede for human workers in an Australian Workplace Agreement.

Denigration of creatures other than white humans is built into the Christian ethic. We should find ways of showing our admiration for other species and for other ethnic groups, apart from exploiting and slaughtering them. Goodness knows what in this field, as in many others, co-operation could do for us.

And here is another thought – is it not likely that all of us could learn from the often clever and compassionate animals that share our lives and our planet?

DIATRIBE 155 - The Endless Working Day

Next to Melbourne's Trades Hall stands a monument which, for once, doesn't celebrate some military victory. It celebrates something far more important: the victory in 1856 of the Australian union movement in the struggle for the universal eight hour day, amongst the first countries in the world where workers won this right.

Bosses and the Howard government have made it quite clear that they regard the 40 hour week as an unnecessary concession to a pampered working class, one that should disappear as soon as possible. And, let's face it, it has already disappeared from many work-places.

Why is it that at a time when, thanks to the abolition of much hard yakka and its replacement by power-driven machinery, all of which leads to an increase in labour productivity, there is this rising clamour for the extension of the working day? And why is it that workers who 150 years ago agitated successfully for the eight hour day, put up so little resistance to the extension of the working day, and the working week nowadays?

As one would expect, there is no simple answer to this. Indeed, the subject would need a book and deserves one. Instead, let's have a look at some of the suggestions that have been floated. On the face of it, you would think that as labour is paid for by the hour, and overtime carries penalty rates, the boss would not gain much by lengthening the working day, as long as the organisation of the workplace allowed the machinery to be used as near to the full as possible. This requirement for maximum use of machinery becomes imperative in certain industries. These include process industries such as iron smelting, chemical production, and industries using steam, such as the rubber industry. The use of two shifts, generally a morning and an afternoon shift also can sometimes be justified because it allows the flexibility so beloved of right-wing politicians. Outside these and a few other examples it is hard to see where bosses gain by working their staff long hours.

Nevertheless so-called executives love the notion of long hours, and there are others, not necessarily right-wingers, who put forward economic arguments why the working day should be as long as possible to maximise profit, or even longer. The earliest explanations I am aware of were put forward by Karl Marx in his monumental work *Capital*. He devotes a whole chapter to the working day. However, in his day and in industrial Britain, the law and social conditions permitted bosses to work their labourers till they dropped, regardless of whether that was economically advisable. Most British employers took this literally. Except where laws forbade the unlimited working day, men, women and especially children were unmercifully worked endless hours. The earliest of these laws in Britain came in the late 18th century, and limited the working week to 56 hours.

Just in case you feel that since then we have come a long way, give some thought to the meaning of the "working week". The working week does not start when you enter the work-place, nor does it finish when you leave. Nowadays, travel to and from work alone generally occupies an extra 10 to 15 hrs a week. Nor is travel a time for relaxation; on the contrary, if it means travelling by self-driven car it may well be the most stressful time of the working day. Other work-related activities equally eat into what appears to be leisure time.

While the vast majority of 19th century bosses lengthened the working day to the max, (and Australian bosses again do so currently thanks to the so-called work choices law), a handful of employers did not. The most enlightened of these was Robert Owen, whose managerial skill ultimately allowed him to own Britain's largest and most profitable cotton mill. Nor was it pure philanthropy which drove him to give his workers a decent go, although philanthropy played a part. At a meeting of his fellow manufacturers he explained in great detail that even in those days the cost of the materials in his processes was such that a simple mistake by one of his operatives cost a lot more than he could save by using the lash on them to speed them up. Needless to say, his fellow bosses did not wish to believe that.

Let's put this into present-day proportion: Although these figures are not generally shouted from the roof-tops, in modern manufacture the percentage of costs due to shop-floor labour is generally around 5 to 10% of total expenditure. The overwhelming percentage of costs is in materials, energy, tooling, administration and other aspects of manufacture which few shop-floor workers are aware of.

Of course, I am speaking of the dim past when work in Australia was still about making things or supplying necessary services. However, there isn't much difference between serving a production machine or serving a supermarket customer when it comes to cost distribution. A few decades ago, it was common knowledge that the wage-cost of sales-people in Myer's department stores was covered by the 5% discount Myers extracted from their suppliers for prompt payments (within 7 days). As the palaces where sales are nowadays transacted grow in size and voluptuousness, and mark-ups are often 300% or more, the cost of labour is generally vastly less than the cost of rent, of advertising, the cost of heating and lighting and the costs of top executives who rake in many millions per annum for running their enterprises into the ground.

Present-day managers, just like Robert Owen in his day, know that there is no economic point in depressing workers' conditions to the point of inefficiency. There is no point in saving money on work-place safety to the point where deaths and maimings in the workplace impair the operation of the enterprise intolerably. Why then, do they do both now the new laws not only allow but encourage such practices?

The answer lies in the distance of the modern manager from the coalface and his/her ability to draw enormous pay-checks regardless how damaging their policies are to their enterprises. This allows them to follow their class ideology rather than any economic sense.

However, things might be looking up for workers. Recently I came across a report in the *Age* which had the startling headline "Coles throws cash at morale crisis". At last, I thought, some relief for an overworked and underpaid workforce. It sounded too good to be true.

Unfortunately, as usual, it was. It turned out that the cash was to be thrown not at the staff but at the top executives. Just how this would boost the morale of the workers was not explained. Can I tell you a secret? I don't think the morale boost will come off. Just how a pay increase to top executives will result in better efficiency on the shop-floor is a secret locked up in the tiny brains of the executives who have the cash thrown at them. There is only one remedy for failing corporations in the minds (if that is the word) of present-day Corporation Chiefs, it is to cut wages and working conditions, no matter how tiny a percentage of overall costs that "savings" represents. It was ever thus. Only when bosses and governments talk about this ultimate remedy nowadays, they refer to it as "Workplace Flexibility". Eat your heart out, George Orwell. *NewSpeak* is alive and well.

DIATRIBE 156 - How Aborigines Dealt With Fires And Farmed The Land

The importance of biodiversity as a goal of environmental management is increasingly accepted in the community; but what is our definition of Australian biodiversity? In its ideal sense we take it mean that diversity of organisms and ecosystems which existed when Europeans entered the Australian continent, although from that we must now subtract those which have become extinct in the last 200 years. The ecosystems we took over had a long previous history - they had been shaped by the activities of Aboriginal people for many thousands of years. Edward Curr, a very perceptive pioneer settler in Victoria, described the Aborigine thus: 'living principally on wild roots and animals, he tilled his land and cultivated his pastures with fire' (Curr 1883).

The knowledge of how to make, keep and use fire was part of the luggage that the Australian Aborigines brought with them into this continent at least 40,000 years ago. As they penetrated further south, they found vegetation which became increasingly unfamiliar, but (to put it simply) over many thousands of years they learned how to apply fire to it, so that when the Europeans arrived a mere 200 years ago, aborigines were getting a good sustainable living from both animals and plants. This is how they did it:

- Aborigines operated from a cultural background that Europeans are only recently beginning to appreciate.
- Fire was a common tool that they used with control and understanding both in their domestic life and in the processes of obtaining food from the environment in which they lived.
- They not only harvested food for today but they had to take care not to destroy the food source of tomorrow.
- Their fire regime was evolved from centuries of experience in gaining subsistence direct from the land.
- Bowman, a recent researcher into indigenous culture, recognised the importance of the long history of Aboriginal burning, and has called the impact of Aboriginal burning 'one of the most important for the development of a comprehensive understanding of the dynamics and evolution of the Australian biota, central to the formulation of appropriate strategies for the conservation of the nation's biota'

He concludes that 'fire was a powerful tool that Aborigines used 'systematically and purposefully over the landscape' (P.390) and that there is 'little doubt that Aboriginal burning was skilful and was central to the maintenance of the landscapes colonised by Europeans in the 19th century.

Aboriginal Land Management

If fire was used 'systematically and purposefully' to what system and what purpose was it used? Anthropological accounts of burning are biased towards its role as a hunting tool - 'hunting, path-clearing and communication' (ABC Science News 1999), but the importance of vegetable food in the diet is usually ignored. Another fact that is sometimes ignored is the dependence of the hunted animals on the existence of appropriate vegetation. When Europeans arrived in Victoria, and before the spread of introduced disease, the reports described the Aborigines as healthy and well-fed. - 'strong and athletic, often 6 ft tall, very intelligent and quick in their perceptions, with exceptional eyesight and particularly fine teeth' (Gellibrand in *Bride*, 1898 p.31). Eyre, (1845, pp. 252, 254) said 'in almost every part of the continent ...I have found that the natives could usually, in 3 or 4 hours, procure as much food as would last for the day, and that without fatigue or labour' They had inhabited the land for thousands of generations, had endured major climate changes, yet they were still living well. Both animal and plant food was abundant.

We know that for many thousands of years these areas had been subject to burning, but there is little detail in the early observations by Europeans which enable us to construct the burning regimes applied by the Aborigines. Edward Curr was of the opinion that there was an average interval of 3-5 years between fires (Curr 1883). In 1840 Stokes made the following observation in Western Australia:- 'On our way we met a party

of natives engaged in burning the bush, which they do in sections every year. The dexterity with which they manage so proverbially a dangerous agent as fire is indeed astonishing. Those to whom this duty is especially entrusted, and who guide or stop the running flame, are armed with large green boughs, with which, if it moves in the wrong direction, they beat it out. '

William Thomas, Assistant Protector of Aborigines in the Melbourne region, in March 1840 observed an old Aborigine who, despite efforts to discourage him, persisted in setting fire in an area of thick scrub with grass beneath. After a time the old man stopped because he said 'he had accomplished his purpose' Other Aborigines were also burning at this time, and the settlers wanted to stop them. Donald Thomson, (1949) in Arnhem Land, said burning 'is not a random business ... [it is] directed by the old men of the tribe, or by others who have an hereditary right.' So we have from these early observations deliberate and directed burning, patch burning, and possible intervals of 3-5 years in late summer in southern Victoria,

How Aboriginal Management Affected The Environment.

In discussing the responses of open forests to fire regimes, Christensen and co-workers (1981) have pointed out that vegetation is adapted to particular patterns of fire involving frequency of burning, fire intensity and season of occurrence. If one wishes to protect small tuberous perennials from the effects of fire, late summer, just before the autumn rains, is the time to burn. The plants are, at that time, safely underground as tubers.

Christensen and co-workers (1981) cite the example that autumn fires favour regeneration of soft-leaved species (Baird 1977). The Ash Wednesday fires of February 1983 at Anglesea, Vic. occurred at just this time, and in the following spring there was a phenomenal flowering of tuberous perennials. In the unburnt areas the flowering was by contrast quite sparse.

Another factor of Aboriginal management was the continual digging of the women in the collecting of roots. The benefits of this cultivation of the soil are obvious, as well as the promotive effect of thinning out dense patches and clumps of desired food plants. Europeans need to take account of Aboriginal management of the ecosystems and its long evolutionary history if we are to succeed in our own management of Australia's fragile environment at this late stage.

DIATRIBE 157 - How Not To Save Venice

Some of you may have seen, a week or two ago, a documentary on telly which looked at the gradual drowning of Venice and the current hi-tech attempts to save the city. So, what are the problems?

Venice is a city on stilts. It is built on a lagoon in which there are islands which rise above sea level at low tide but some of which are submerged at high tides. I presume the city was built that way because it allowed the city to avoid the overlordship of whatever rulers dominated the rest of the area. As a result, Venice became a trading centre and seaport with a culture which we benefit from even now. Such political arrangements were common in Europe around this time. The lagoon in which Venice sits is fed from a small river which is tidal, like most such situations. The original builders of Venice simply designed the city so that the tidal flow rarely or never overwhelmed the river to an extent that major flooding took over. The city's peculiar charm came from the "canals" which resulted from this island-based construction.

Unfortunately, Venice was dealt a poor hand by nature the land below the lagoon is part of a tectonic plate which gets drawn into the ocean at a rate which, although slow, is far from negligible. In short, the city is slowly sinking into the sea. In the past, this descent could be compensated by building up the pavements. There is however, a limit to this as it affects the height of the entrances to the buildings. This natural drop in level was, however, far outstripped by what modern technology inflicted on the city. For a start, the tourist authority had the bright idea that cruise ships should be given access to the lagoon. With these ships becoming ever more monstrous in size (and in concept), the channel at the lagoon entrance had to be deepened. As the cross-section of this channel determines the rate at which water can enter the lagoon at high tide, this deepening immediately increased the flooding during these periods.

The next piece of prime stupidity was to allow a chemical factory access to the groundwater below the city; this lowered the elevation of the buildings by a further 20 cm. And while the stately gondolas with their stately gondoliers get around with a minimum of damage to the building foundations, the now common motor launches do a great amount of harm merely by creating strong waves in the narrow canals. The ultimate insult to the city's ecology comes from global warming; this will raise sea levels by a further, as yet indeterminate, amount over time. You can see that every one of Venice's problems, bar earth movement, is the result of human activity and relatively recent technology and all are totally predictable. Some of them could be repaired by simply reversing previous wrong decisions, for instances, why bring cruise ships into the lagoon? All round the world cruise ships anchor well away from the shore and use launches to take the tourists to the memorabilia shops or whatever unnatural attractions they have come to spend their money on. Another partial solution would be to restore the groundwater removed by the chemical plant.

The obvious way to stop flooding at high tides is to restrict the rate of inflow at the lagoon entrance. But then, the authorities are not looking for the simplest way. Remember, this is the 21st century. Although some of Europe's best minds and most experienced hydrologists have worked on the problem, and cautiously come up with a variety of solutions, the one the authorities settled on was called Project Moses, Moses, as in the mythical figure who (apparently successfully) called upon the waters of the Red Sea to part. Project Moses consists of 76 enormous concrete flaps, each weighing hundreds of tons, which are hollow and hinged on the bottom where they are attached to the sea floor. Should the high tide demand it, these flaps are to be filled with air which will make them stand up to hold back the waters. This project which exists only in the form of calculations and a computer simulation costs around \$AUD 8-10 billion, a sum which the Venice administration is not likely to find, given that they are broke. And who placed the contracts for what may well turn out to be a white elephant? One Signor Silvio Berlusconi, the now deposed president of Italy, a man who owns nearly all the media in Italy and just happens to be the country's richest man.

Given the time which was spent on the proposals, what was the hurry in rushing the project to the contract level, against the principled objections of Green groups and even Venice's mayor? You may have guessed it – it was an imminent election. Since then Italy has had another 2 presidents, and the Moses project has been put on the back burner. I cannot discover how much has been spent on it already but you can rest assured that the contractors, all of whom are Berlusconi's mates, have not gone into the red over the transaction. Indeed, it seems that the purpose of this exercise was not so much the saving of Venice but the lining of the pockets of the modern Mafia.

What is the lesson from this? There are lots of lessons. The most important is that the story illustrates how a well designed city is being destroyed by the mindless application of recent technology; How capitalist greed overrides all other considerations; How capitalist technology tends to apply inappropriate solutions despite the better knowledge of people with superior knowledge who are deliberately pushed aside by ignorant people exercising power. How it is quite foolish to disregard decisions taken in the dim past on the assumption that we know better.

Let's hope that Venice, this cultural and artistic icon of a bygone age, can survive the impact of natural catastrophes and human stupidity. And don't let us kid ourselves that if the city survives it is due to the application of the latest in technology when it is far more likely due to the application of common sense and the exclusion of vested interests. Keep your fingers crossed!

DIATRIBE 158 - Lessons From The Coat-hanger

We are celebrating 75 years of the Sydney Harbour Bridge, or coat-hanger, as it is popularly known. For once, my diatribe is not directed against my subject, the harbour bridge. But this is because we are talking about a project which was finished 75 years ago, and which, as well, was a public project.

Even though the bridge itself is a very impressive object, weighing 65000 tons, and even now, after all this time, representing the world's widest long-span bridge as well as the world's largest steel arch bridge, these are not the details I want to talk about. To-day, the design of a structure like the Sydney Harbour Bridge would offer few difficulties in the way of the labour involved in the tens of thousands of calculations involved in the size of the girders, the size and placement of rivets (there are 6 millions of them, ranging up to 40 cm in length and 3 1/2 kilos in weight. That is because computers make short shrift of this sort of brain-bending repetitious activity. The hassle between John Bradfield, the Australian engineer ultimately appointed to oversee the project, and Ralph Freeman who converted Bradfield's design into the essential structural detail would, I dare say, not figure largely to-day when much of this detail could be left to some computer program.

The greatest achievement was, I believe, in the logistics of the project. We are not here talking about a lump of steel; nor are we talking about designing this lump of steel. That is what was done in the case of the Westgate bridge where failure to design the putting-up of the spans led to the collapse of the span and the death of dozens of workers.

In the case of the Harbour Bridge every aspect appears to have been planned, even to the extent of the aesthetics of the structure. Because our listeners, particularly those outside Sydney, will not have a picture of the bridge and its environs in their minds; let me give you a brief description of the tasks involved. The bridge sits between two rocky outcrops; about 500 metres apart. As these are the attachment points for the arch, their actual distance had to be established to within about 3mm. This was no problem 20 years later when survey points for the Snowy River tunnels had to be 100 times more accurate, but must have been quite a feat at the end of WW II. In actual practice there was no difficulty in achieving the specifications. The halves of the arch were tied back to the abutment rocks by steel cables looped through tunnels in the abutments; these cables were fitted with turnbuckles which allowed the arch halves to pivot about ½ metre diameter "pins". This sounds massive but looks puny compared to the structure itself. Each of the pins would comfortably fit into a present-day lounge-room and could be taken in through a standard size door except that the floor wouldn't carry the weight.

On the day of joining the two halves, which had been constructed using creeper cranes running on the bridge-work itself, all that was required was to slacken these two cable loops. At this stage, the gap in the spans was about a metre. The closure took place on August 19 1930 and went without a hitch. Indeed, as far as I can discover, the only hitch in the project was a blow out in cost, twice what was originally projected. Compared to recent project overruns, this was peanuts.

You might ask: "What is a dyed-in-the-wool Luddite doing – praising a piece of technology? Remember, Luddites are not against technology in the abstract, just against inappropriate or counterproductive technology. Bridging the harbour at this point certainly had positive features. Other features of the bridge – its width, in particular, were certainly visionary. Few discussions raise the question of whether an arch bridge was the most suitable construction, weighing, as it does, some 4 times the amount of a suspension bridge of equal carrying capacity. There are also detractors who find the massive arch overpowering. While that is a matter of personal taste, we should remember that the 4 towers that stand at the end of the arch originally had no structural function; they merely balance the visual impact of the arch. If you look at a picture of the bridge with no towers, you can see what the architects achieved by having the towers there. Nowadays one of the towers at the city end houses a museum, and at the other end, the towers serve as vents for the newly built harbour tunnel system.

What I really want to highlight are the logistics of the project. Nowadays, a construction of this size, involving an on-site work-force of nearly 2 ½ thousand would employ an entire office full of commercial personnel filling reams of memos and expected to write endless reports. There would have to be lawyers, accountants. "human resources" managers, and so on. Court-case would follow on court-case, endlessly arguing the toss over payments to subcontractors. And even though 16 people lost their lives during the bridge construction, this was due to individual accidents rather than some major mishap. Nevertheless, those lives should not have been lost, and there is little doubt in my mind that given that construction took place at the height of the depression, some corners were cut. Nevertheless, there is no evidence that undue speed-up pressure was exerted on the workforce.

One of the reasons there were no major hassles was that the supervision of the construction was left in the hands of one state-owned authority. There was one major contractor, Dorman Long, a British firm which had to give an undertaking that all labour employed would be true-blue Aussies.

DIATRIBE 159 - Uranium Power Is No Answer To Global Warming

Not long ago, one of our listeners asked me to again explain why I didn't consider nuclear power a suitable way of reducing Australia's greenhouse gas emissions. By coincidence, there are currently major reasons why nuclear power has again become a topical subject at this time. One is that our old Lucas Heights reactor, which went by the name of HIFAR, has been replaced by another, (called OPAL), which uses the same outdated technology. OPAL, which cost Australians some \$500 million, has just come on stream.

The avowed purpose of these reactors was their use as a source of neutrons for so-called research purposes. One other reason is that the ALP has decided to abandon its old three mines policy in favour of open slather for uranium mining. The third is the official admission by the Howard Government that they will put uranium on their agenda of countering widespread concerns about climate change.

Let's first of all deal briefly with nuclear power. After the US dropped two nuclear bombs on Japan at the end of WW II, development of which had involved the biggest industrial research project ever in the US, run at the taxpayer's expense, the captains of US industry were desperate the turn this massive investment by the people into private profit. Indeed, even sceptics including myself and many of our friends were attracted to what seemed to be an inexhaustible source of power. If only!!!!

Much of this delusion was based on the secrecy and misinformation as well as the hype of the nuclear industry, which claimed that nuclear energy would be too cheap to meter, that it was safe, clean and cheap. A few years later it became clear that it was dirty, expensive and dangerous, and construction of nuclear power stations ceased. For 25 years no new nuclear power stations were built or even under construction.

It is not necessary to offer scary arguments listing the dangers of nuclear power, although these are of course realistic. There are many straightforward technical and commercial reasons why nuclear power is literally a fizzer. Let's list the technical ones first:

- **One:** Only about a fifth of energy used in industrial countries is in the form of electricity, but nuclear power can supply nothing else.
- **Two.** Currently, nuclear power contributes less than 2% to world energy consumption. If any appreciable part of the world's electricity were produced from nuclear sources, the world's uranium would run out in a matter of a few years. This was realised many years ago, and Britain, Germany and France amongst others built experimental breeder reactors which were supposed to generate more nuclear fuels than they consumed. None of these ever succeeded.

- **Three.** Only a small amount of Uranium is in the form of U235, the isotope which can fuel nuclear power plants and which can be separated out for reactors at commercially viable rates. Beyond this nuclear power would become prohibitively expensive.
- **Four:** No-one so far has found ways of disposing of the dangerous wastes, some of which have now been accumulating for fifty years or more. These wastes will remain dangerous for hundreds of thousands of years. The same goes for disused power stations which currently can only be moth-balled at enormous and so far indeterminate costs. There are now dozens of such dead power stations around the globe. They will remain as silent monuments to nuclear folly. Even encasing them in concrete, the currently favoured method of disposing of dead nuclear plants, would cost the earth and would require vast amounts of fossil fuel energy. Indeed, nuclear experts have argued that the preparation, building and decommissioning of a nuclear power station would ultimately consume more power than the station could produce during its lifetime. No one knows for certain, because no plant has ever been taken through this full life cycle.
- **Five:** We need relatively quick solutions for global atmospheric pollution. The time taken for the completion of a nuclear power station from the moment of decision to build one is never less than 15 years.
- **Six:** Once again the world is threatened by the nuclear holocaust, which is inextricably linked to the nuclear fuel cycle. Australia's prospective participation in the nuclear weapons club is the only explanation for the enthusiasm of successive Federal governments to spend vast amounts of our money on out-dated nuclear technology and enormous publicity efforts on inventing lies to sell this otherwise pointless exercise to the public. It is not insignificant that ASIS, Australia's military secret agency, has played a large role in pushing the nuclear barrow, and that all these activities are kept secret from you and me.

So, what does the government expect to gain from publicising their efforts to go ahead with nuclear power? This is not the first time this spectre has been raised. It was raised by Philip Baxter, then head of the Atomic Energy commission and an unashamed proponent of building our very own nuclear weapons. With the advent of the Whitlam government, these plans were dropped from the official agenda but it is likely they still live on in the minds of the military. What does the Howard mob expect to achieve with the current move to nuclear power?

There are two possibilities. They have no intentions to co-operate with the rest of the world to counteract the current threat from global warming. John Howard has made it clear that to his blinkered outlook every dollar in the bank account of Australian mining companies, particularly the coal and uranium barons, outweighs the threat to humanity from the damage to our environment implicit in the current course his government is taking. He sees the current horrendous drought merely as a means of centralising power in Canberra. He would regard the announcement of nuclear power for Australia as a heaven-sent opportunity to do nothing for the next 15 years in regard to alternative energy sources, of which we have an abundance in this country, or in relation to energy saving, for which there are many opportunities. He favours only two pie-in the sky options: Nuclear power which cannot contribute materially to the solution of the greenhouse gas problem, or the so-called clean coal project which would allow our coal barons continued super profit were it feasible, This would require a new raft of coal-fired power-stations which collect all their exhaust gases and concentrate them before forcing them underground into the earth where, it is claimed, they would stay safely stored for ever. This scheme, too, would take at least 15 years before it could come to fruition.

All these are Clayton's solutions which are intended to give the appearance of taking action on climate change, while in fact shovelling vast amounts of money - our money - into the pockets of the captains of the mining industry. These schemes are what would occur to the people in Canberra whose limited intellect has already denied Australia a chance to participate in the unlimited opportunities offered by the current world energy situation.

This scenario, however, is unlikely to succeed. During the last 15 years the federal government has pushed the concept of a nuclear waste disposal dump. Millions of dollars have been thrown at advertising campaigns designed to treat this as a technical problem. It is not. Both the siting of nuclear power stations of which the government wants to build some two dozen all round the Australian coast-line, will founder on the resistance of state governments and of the Australian people. This has already occurred in the case of the waste dump. After years of trying to force this unwanted imposition down the unwilling throats of South Australians, West Australians and people in the Northern Territory, the Federal Government has been to site the dump on Commonwealth land over which residents have no control. They have had to do this because the new OPAL reactor's licence was made contingent on the existence of a dump for its waste. It is time for us to revolt.

DIATRIBE 160 - If Uranium Power Is No Answer To Global Warming, What Is?

Last time I was on air, I pointed out that the two supposed solutions our government is offering to global warming – the existence of which they are now reluctantly admitting – are figments of the imagination of the coal and

uranium mining industries. Even if they could contribute meaningfully, nuclear power and CO₂ sequestration are mere notions which would take far too long to implement.

By a happy coincidence, the end of May saw the appearance of the precise book which gives the answers to alternative power as far as they are known. I am talking about Mark Diesendorf's *Greenhouse Solutions with Sustainable Energy*. Mark currently lectures at the University of NSW at the Institute of Environmental Studies; and has spent much of his life teaching various courses to do with sustainability. He has written nearly 100 papers and book chapters as well as the recent book I mentioned. Better still, he has been an environmental activist all his working life and as such he has dealt with the politics of the subject as well as its technology. If you get a chance, borrow Mark's book from the local library or, better still, if you can spare the cash, buy it. It will cost you \$50 from the bookshops, or \$45 from the UNSW bookshop.

Having done my advertising spiel, let's get on with the nitty gritty. As I mentioned, the Howard Government and its stooges repeat endlessly that the only ways CO₂ free base-load power can be generated – apart from burning coal or gas – is through nuclear power stations or by so-called clean coal technology.

By a not-so-strange coincidence, these two apparently unrelated technologies have a lot in common; mainly that they are both designed to put oodles of money into the pockets of mining magnates. That's what you would expect, given where they come from. The other, more important common factors are they won't work and that they take a long time to implement before people find out that they won't work, as I mentioned earlier.

There is, however, no need to rely on the non-solutions proposed by our politicians to deal with the greenhouse crisis. In Australia and in Victoria in particular, this means finding ways of producing electricity because we currently generate electric power by burning brown coal which has only a very small energy content. In Victoria this means that whereas only about a fifth of our energy requirements are in the form of electricity, almost half our greenhouse gas pollution originates with electricity generation. This doesn't mean that we have to have fume-belching smoke-stacks for ever, however. Mark Diesendorf's book shows that there are numerous solutions available right now, and probably an infinite number in the future. I shall try to list them in what is, at present, their order of economic importance:

Firstly, there is wind-power. This goes back at least three millennia in the form of sailing ships and grain mills which latter came into use almost as early as grain production itself. Electricity production from wind was common on Australian farms since the 1930s with lead-acid batteries smoothing out the peaks and troughs of the natural variations in wind-strength. Let me here give an explanation of a common fallacy. The two types of wind-mills seen on farms are both practical; the multi-bladed forms are for driving pumps which often stop in mid-stroke and need considerable torque to start up from there. Their inefficiency doesn't matter – there is plenty of time to fill the drinking troughs for animals or domestic tanks for humans.

The other type is the high-speed two or three bladed turbine which drives a generator for electricity generation. It is this type, scaled up by factors of hundreds, which currently is one major source of renewable energy.

Another already well established renewable is solar heat and electricity. Solar hot water services are economically viable (in the sense that they pay for themselves over a few years in all states with the possible exception of Tasmania. Great strides have also been made in the development of photovoltaic cells which generate electricity directly from sunlight. There are lots of proposals, some of which have already been implemented, for concentrating the sun's rays onto pipes which containing fluids which will ultimately generate steam to turn turbines. There is biomass which utilises the decay of plants to generate heat. The earth's internal heating, a form of nuclear power, is also almost inexhaustible compared to the energy we require to maintain our current levels of well-being. This could be tapped by bores which could carry cold water down and hot water or steam on the way back. The tapping of wave energy and tidal flows is being explored world-wide. There was even a proposition for a solar chimney somewhere near Mildura which used a covered area close to the ground to heat air which then rose in a chimney-like structure twice the height of the Eiffel Tower, driving an air turbine on the way up. This project appears currently on the back burner.

These are not pie-in-the-sky propositions, but unlike nuclear power or CO₂ sequestration, are practical solutions which stand and fall on hard-nosed economic calculations. So, with this bewildering choice of practical possibilities for sustainable energy production, and given the pressure to implement workable solutions, what do the coal barons put forward as reasons for rejecting the real possibilities? Of course, it has to be something which their non-solutions avoid. Their answer is that whatever solution is proposed, it has to provide base load power, that is, power available 24 hours a day for 7 days a week. This is ridiculous. No existing energy source is available 24/7 all the year round. There is downtime for maintenance, the odd breakdown and waiting for repairs. In fact, you are lucky to get more than 80% reliability. Besides, you are better off when the generating units are small, as was clear after the commissioning of Hazelwood which had very little flexibility, consisting of a small number (4 or 6, from memory) huge turbine – generator aggregates.

One of the common misconceptions about adding relatively small generating units like wind turbines to the electricity grid is the outdated belief that alternating current technology makes this difficult in practice. Modern technology makes the addition of extra generating plant a breeze. And as for the variability of wind power supplies, they are no more variable than power consumption, and even within a moderately-sized wind-farm the spread of individual turbines makes up for local gusting. Mark Diesendorf estimates that by the middle of this

century half our electricity could be supplied from sustainable sources at a cost equal or lower than that delivered by fossil fuel fired power plants.

But cost comparisons don't, in this case, compare apples with apples. Government support for the coal and uranium industries is not limited to attempts to disadvantage and disparage sustainable energy production. It is backed by vast direct subsidies, currently amounting – wait for it – to some 61/2 billion dollars per annum. These come in everything from tax remissions to research grants. For instance, the money for fossil fuel research is vastly greater than that provided for renewable energy, and gas-guzzling four-wheel drives are attracting half-a-billion dollars annually in tax benefits. Keep some of these figures in mind next time someone in Government waffles on about their interest in reducing global warming.

So far we have only taken a look at electricity production, our greatest single polluter. The next two on the list are transport and housing. For instance, a German research paper from a few years ago showed that each able-bodied citizen could be given a new bicycle every year plus free public transport and an annual bonus of a few thousand dollars if they gave up their car. The extra exercise may well bring about in public health what endless exhortations and hospital beds have not achieved.

As far as habitation goes, new Australian houses are once again showing enormous window spaces facing west and compensated for by massive air-conditioning systems which make our summer energy loadings the highest of the entire year. Think of the possible savings achievable through insulation, drapes and a smidgin of human input!

These projections of possible savings used to be mere speculation. With global warming now a reality, with the seas rising and oil running out, nature may be forcing on us what common sense failed to do in years past. At a time when the term "lifestyle" has come to mean spending patterns, could we hope to once again establish human relations and personal achievements as the yardstick of our well-being?

DIATRIBE 161 - Senseless Mass Murder

I remember reading a wartime naval fiction book about a situation where after the torpedoing of a cargo ship by a U-boat the captain of a destroyer arrives on the scene immediately afterwards and is faced with a horrifying dilemma: in a sea where surviving merchant seamen are swimming around waiting for rescue, but where the U-boat is still lurking below the surface: will he drop the depth-charges which may not sink the U-boat but will certainly bring a horrible death to the surviving merchant seamen?

Why is this death so certain and so horrible? Depth charges are simply massive underwater explosions. Their function is to rip ships' plates apart as the underwater sound waves pass the hull. If they can do this to a ship, imagine what they do to a living body. Actually you don't have to imagine it; for 100 years people have fished by throwing explosives into the ocean and harvesting the fish that turned belly-up and came to the surface. For every edible marine creature so harvested, numerous others perished pointlessly and senselessly.

The sound pressure generated by underwater explosions at close range is unbelievable. Scientists talk about 160 to 180 decibels, and it doesn't sound like much. But decibels are a logarithmic scale and there is a doubling of energy for every three decibels. The loudest noise a human can live with is around 120 decibels. After that, your ears suffer permanent damage. Incidentally, a similar scale is applied to earthquakes, which explains how a mild one is only a few Richter points away from the most destructive ever experienced. But I digress.

Every so often pods of whales in our waters go astray and get washed up on beaches. What is more, frequently, if you turn them back into the ocean, they stubbornly come back again. Ultimately they perish miserably on the sand. We cannot possibly accept the idea that over the millions of years whales have been on the planet evolution would not have corrected such a trait if it had been endemic to the species. Nor am I aware that in the days Captain Ahab and of large-scale whaling in southern oceans this type of whale suicide was ever commented on. It makes sense to assume that this phenomenon is human-caused and relatively recent.

There is one type of event that does not happen regularly in our oceans, and that is really large underwater explosions. If such major explosions happened close to whales, that is clearly a mechanism which could cause disorientation. Whales are mammals, and their balance and direction finding systems are likely to reside in their ears. Wherever it resides, it is more than likely that underwater explosions would affect them.

Now who would deliberately cause massive underwater explosions? Military scientists, that's who! Given that whales can communicate with others over thousands of kilometres by their relatively gentle songs, what on earth would you achieve in the way of human communications by letting off massive explosions? Goodness only knows. The unfortunate fact is that the military of so-called advanced countries have been polluting the seas with such noises with monotonous regularity in recent years. Because it is the military who are doing this, we cannot even ask what the purpose of this vandalism is. On the face of it, it makes no sense at all. It cannot be a means of communication – for military communications you need secrecy, and certainly underwater bangs

cannot be concealed from enemy or friend. What is more, these shock-waves can, in an open ocean, be traced with great precision to their source.

But then, it isn't necessary for us to speculate on the purpose of these underwater explosions. For the military, these may simply be a power-trip, as so many other experiments in tearing human beings limb from limb, burning them alive or gassing them, preferably slowly and with a maximum of pain. What is important is to try and prove that the beaching of whales and other marine disasters are actually the result of human (or inhuman) activities and to organise effective protests if the slaughter can be traced back to a particular activity. Surmise is not enough, unfortunately.

Of course, it should be enough in cases like these. As we are not told about these underwater tests, it should be our right to demand an explanation as to why they are carried out. That's where the destructive nature of capitalist so-called law comes in. If such destructive tests are carried out in waters attached to some national entity, the rulers of this entity can do what they like to the marine environment. If the tests take place in international waters and the affected creatures are therefore nobody's "property", it is open slather for all and sundry. In this world, the only thing that counts is property.

Coming back to the whale beaching, there is now a plausible explanation. Whales swim at depths of hundreds of metres where the water pressure is enormous. Expressed in the old terms, for every 10 metres of extra depth, you add about an atmosphere, or the same as a kilogram for every square centimetre. If human beings go for dives, they have to do so in stages to accommodate the body to the increased pressure, and conversely when coming out of deep dives they have to do so slowly. This has to do with the fact that water is not compressible but gases are; any gases or air is forced into the liquid blood at depth, and conversely has to be given time to get out of the bloodstream on coming back to the surface. If we don't take regard of this and subject our bodies to high pressure first and reduce this pressure suddenly, we get what has become known as the bends.

It is likely that whales are subject to the same problems, only more so. After all, they dive to depths which are almost inconceivable. Indeed, they are known to live down there for a large part of their lives. That's why we know so little about them; we cannot easily follow them down there to observe, but have to use clumsy pressure vessels which are actually miniature submarines.

What has this to do with underwater bangs? It is now thought that the shocks created by these explosions force whales to rise to the surface at rates which their system cannot cope with; in short, they get the bends. That would be one explanation as to why the entire pod is similarly affected. There may, of course, be other explanations.

As an atheist, I sometimes wonder whether there is not a viable argument for religion there. The utter arrogance of human beings who destroy creatures wantonly because they don't belong to anyone might perhaps be curbed were these creatures thought to belong to some vengeful god?

DIATRIBE 162 - Two Types Of Carbon Sequestration

For many years the likes of Howard and Bush tried to deny the existence of Global Warming in the face of all evidence and in denial of the work of most reputable scientists. Now that this is no longer meaningful, there is only one way to go, given that the culprit is the coal industry which is the darling of all Australian governments: To procrastinate by suggesting an unworkable coal-based "solution". The one they picked on, apart from nuclear power, is called carbon "sequestration". Sequestration shares a lot of perceived advantages with nuclear power. Both would, if they could be made to work, take 10-15 years to implement, and both would put lots of money in the pockets of the mining industry from the day the projects are approved, even if they never get off the ground.

How is carbon sequestration supposed to work? First you collect all the carbon dioxide from the offending smokestacks, mainly those of electricity power stations. As this cannot be done easily you start off by scrapping all existing stations and replacing them with new ones which allow the capture of the CO₂. Oops, there go a few hundred millions as well as a massive load of greenhouse gases produced during construction. You then find a few large caverns in the ground, possibly the ones left when you have pumped all the oil out of them. After you have convinced yourself that they won't leak the carbon dioxide which is of course hundreds of times thinner than the oil that was removed, you then bore several kilometres deep holes into them, and connect them to the carbon dioxide collectors via some bloody great pumps.

This compressed gas then stays down there for a few millions of years. Keep your fingers crossed. By definition, you have to throw these millions of tons of gas away; to let them back into the atmosphere would spoil the whole purpose of the exercise. So you can't even use this gas for aerating all the beer or soft-drink in the universe. And, if you are lucky, the energy you need for running all this machinery will not, in itself, produce more in the way of greenhouse gases than it disposes of in the bowels of the earth. No-one knows how much all this is going to cost in energy or in dollars, because no-one has yet done it on a commercial scale. In all, it seems like an ideal solution from the governments and the fossil fuel industry's point of view, and it is being treated as such.

Quietly, away from the “vroom-vroom” technologies which have brought us to this disastrous stage of civilisation, there is another stream. In one of my previous talks I referred to the soil technology practiced by the people of the Amazon before the arrival of Cortez and his band of professional gold-mad murderers in the 16th century. When Cortez arrived, he found a lush civilisation thriving on what were originally poor tropical soils. These had been treated by adding nutrients and particularly charcoal to the drained soil, which in turn encouraged the growth of beneficial microbes.

The Spanish invasion brought not only slaughter to the area, but also diseases against which the indigenous population had no defence. When the Spaniards returned 90 years later, the original inhabitants and their civilisation had disappeared. Since then, aided by the power-based technologies of the industrial age, slash-and-burn McDonaldisation has laid this formerly fertile country to waste.

Around the year 2002 western scientists took up the challenge of discovering the secrets of the Amazonian agriculture. By 2007 there was a world-wide movement based on what is now known as bio-char or terra preta agriculture. Unlike the concept of pouring artificial fertiliser on unwilling soils, terra preta requires a deep understanding of the processes involved and the most suitable bacteria for particular soils. All this was discussed at a conference at Terrigal, NSW, in May 2007.

Much of the bio-char technology has yet to be fully explained. The literature now contains dozens of papers from several dozen academics. But it should also be noted that Australia’s organic movement has for years practiced techniques which will have to be followed if bio-char is to succeed.

Terra preta is not just another agricultural technique. One of its side-effects – if that is the term to use – is that it absorbs CO₂ from the environment in huge amounts. Unlike the carbon sequestration processes proposed by the fossil fuel industry, this is achieved without an input of energy. Quite the reverse, in the process of incorporating the charcoal into the soil combustible gases and liquids are produced which can be added to our fossil fuel reserves.

Also, the development of this science has highlighted the value of compost. Compost is not merely a means of adding nutrients to the soil. Compost is not just a fertiliser; it adds benefits ranging from adding organic matter to the soil to storing 20 times its own weight in water. As against chemical fertilisers which deplete carbon levels in the soil, as gardeners know well, working composts, animal manures green manures and legumes into the soil has immense benefits in providing nitrogen to the soil, particularly if a source of readily available carbon is included.

Why is this wonderful opportunity to reduce the carbon dioxide level in the atmosphere being largely ignored in the mass media and totally ignored by our masters? Our male-dominated culture simply regards these technologies as “Mickey-Mouse” because the “vroom-vroom factor is absent. It is a matter of ideology. Ours is a civilisation of rape rather than co-operation. Even our terms are skewed to hide this inconvenient truth. Otherwise, how could you talk about “harvesting” old-growth forests which we have neither planted nor tended? Our industrial agriculture is all about brutally forcing the soil to give up wealth which can be turned into financial advantage for the few; the provision of sustenance for the rest of us is an accidental side-effect which is only of passing interest to the industrial capitalist. Providing for future generations is not part of this agenda.

It is poetic justice that the desire to rape nature for the bounty she is only too willing to give us in return for a little consideration and understanding currently rebounds on us to the extent of threatening our very existence as a species. The belated attempt to develop a form of agriculture which allows us to work to assist nature, rather than fighting her, hopefully represents a turning point in technology. It is gratifying that Australians, particularly Australian scientists, are playing a leading role in these developments

DIATRIBE 163 - Getting Our Measure

In 1790 the French not only stopped shortening by a head the torsos of those who had fallen foul of the revolutionary government, they also looked towards simplifying the weights and measures system. This was highly laudable; there were as many different inches and feet as there were European countries, duchies and assorted kingdoms (in Germany there was more than one), and the number of basic weight units didn’t lag far behind. France, for instance, had some 5000 different inches! This problem was appreciated world-wide and numerous solutions had been proposed for it. There is no denying that the French Metric system was a very good one. It came from a large committee of quite diverse people. They made it clear that this was to be a flexible solution to serve all manner of trades and professions as well as the proverbial man (and possibly woman) in the street.

In principle, it was simple. Over the centuries, trades and professions had developed convenient units which people could relate to; the cubits of the ancients were the length of a fore-arm, the foot was what it said it was, the inch was the length of the first joint of the thumb and so on. You could multiply these units or use fractions of them for smaller units. Because few people were taught the use of the decimal divider, usually a point or comma,

by common usage measuring units were usually the base unit multiplied by a number ranging from 3 (three feet to the yard) to 16 (16 ounces to the pound). There was no rhyme or reason to these divisions and multiples. For instance, there were 7000 grains to the pound or 437 1/2 grains to the ounce. I assume there were equally complex multipliers on the continent of Europe. One thing which seems to have been common to these systems was the use of binary dividers (half, quarter, eighth, sixteenth etc., down to the sixty-fourth and one-hundred and twenty-eighth). These made a lot of sense, each being the previous one halved.

The 18th century French reformers understood that unless their reformed system was equally convenient, it would not take on, and they were dead right. They proposed that each unit should be based on the base unit multiplied by ten if it was smaller or divided by ten if it was larger. This way, decimal units were generally available which were of the same order as the old established ones. This led to only one conflict I know of: German cooks used recipes in dekagrams while Italians used hectograms. You will note that both of these units are related to the ounce by a factor of around three, the hectogram being around 4 ounces while the dekagram is around a third of an ounce. This makes my point about people choosing convenient units if given a chance.

In 1960, the metric world was given a new set of rules. It was called SI, or *système international*. One wag said - this was because it was neither a system nor was it international. It wasn't international; the US never accepted it for other than scientific purposes, Britain had it limping along with Imperial. As for a system, right from the beginning it was riddled with exceptions.

To most of us old-timers who had been brought up to the original versions of the metric system it appeared that SI was forced on humanity by a battle between the engineers who wanted a kilogram-metre-second system and the scientists who wanted a gram-centimetre-second system. I am not going to bore you with explanations as to why this battle raged, only that the engineers won – as if that mattered to you and me. The butchers, bakers and candle-stick makers never got a look in.

Two questions now come up. One – why do I raise this subject once again and, a bit more interesting, why did so many European countries, albeit after putting up some initial resistance, embrace metrics so wholeheartedly? The reason for my renewed interest is that metrics have been in the news lately. The international body which regulates SI metrication has quite justifiably decided that the units for mass and length should not reside in a vault in Paris in the form of lumps of platinum but should be expressed in terms of the speed and wavelength of light which, give or take the ninth decimal place, is the much the same everywhere on earth and, one hopes, fairly similar over those parts of the universe which we are likely to visit in the near future. This redefinition, as I said, affects these units in about the ninth decimal place which is not likely to greatly upset anyone except some highly specialised physicists.

The other news is more disturbing. Britain is going to reintroduce, as far as I understand it, the imperial system in some form, as a legal standard. Not having seen the arguments for this, I can only assume some of the reasons for what I see as a retrograde step. I take it that the most convincing is the Americanisation of Britains economy and military hardware. These are good excuses for taking giant backward strides.

Not that this was necessary. SI itself was a massive backward step. The original metric system allowed people to create their most convenient units by making use of the base unit with suitable multiples and sub multiples. This meant that the chosen units were generally no more than factors of ten apart. This was similar to the old Imperial units; there were 16 ounces to the pound, 12 inches to the foot etc. with SI you were advised to choose only the milli- and the kilo- prefixes, in other words the units were separated by a factor of a thousand in the case of linear measurements, a million in the case of areas and a thousand million in the case of volumes. And even though I cannot see any compulsion written into SI to avoid the deka-, the hecto- and so on, in fact we never use the hectogram or the dekagram or the decilitre or the decimetre. Yet these are the most convenient units for everyday use. Mind you, in many cases these frowned-on sub-units could not easily be avoided, so we have the hectopascal for tyre pressures, (the pascal not really being a pressure but a partial vacuum), the decibel for sound pressure, and the hectolitre for giving the volume of water tanks, to name only a few.

So, the initial attempt to use only the milli- and the kilo- failed miserably. Even then, use of the suggested units was impracticable, so the solution found was to commit mayhem on the system. As it was known that most people couldn't easily use decimal fractions denoted by the decimal point, the powers that be decided that you could use the zero not as a digit, but as a place-holder. So, 500 grams doesn't really mean an exact weight of 500 grams at all, it means half a kilo. The two zeroes at the end, or at least one of them, means that even though a zero is shown, it could be any integer, including a zero. In practice, however, many cooks will assume that if the recipe says 500 grams, you have to laboriously weigh out 500 grams exactly, even if the eggs used in the mix could be any weight at all.

The result of this is that people used to the Imperial system regard metric units as an abomination, and I don't blame them. A simple answer would be to revert to the use of suitable sub-units in the way the designers of the system, who knew a thing or two, suggested. Another, additional people friendly step back to the real metric system would be the use of binary fractions. When you see 500 ml on the label of a bottle you know it really means half a litre, so why not say so. No bottling machine can measure liquids to the nearest millilitre, nor is it necessary. The millilitre should be used for measuring medicines, not wine and beer. Reverting to an imperial system at this stage would make as much sense as reverting to a flat earth.

POSTSCRIPT - All Is Not Lost! A Personal Note

I need to apologise for the pervasive sense of doom which has filled most of these *Diatribes* pages. Unfortunately this was – for me, anyway – a reflection of the spirit of the last couple of decades.

Born in 1923 and having escaped Hitler's mass-murder by a whisker, I had, like many of my left-oriented contemporaries, high hopes for a better future. And – let me admit it – some of these were based on an assumption that science and technology could provide a better world for all. All that stood in the way was an anti-social system which put profit before humanity. That system, I thought, was on the way out.

Except for that last sentence, mine was a reasonable belief, a faith if you like. Indeed, most of us socialists failed to realise that for all our anti-religious fervour, our wishful thinking for a better society based solely on reason, we were actually promoting a faith. We were convinced that human development followed a straight line path, and it was up to us to speed up this development by our actions. The possibility of society going backwards only rarely occurred to us.

This comfortable faith got a severe jolt with the collapse of the Soviet Union towards the end of the 20th century. Not that we had admired what went on there; on the contrary, our criticism of Soviet politics kept us on the fringes of the Australian Communist Party and under constant threat of expulsion. For me and others the positive aspect of the Soviet Union lay in its value as a bogey. The worst excesses of capitalism had, in developed industrial countries been avoided, in my opinion, through the quite unfounded fear amongst the capitalist elites that there might just be a chance of a left revolution if they drove their greedy excesses too hard. The cold war was proof of this unreasoned fear, as those of us affected by cold war repression knew only too well. I think this analysis stands up reasonably well to-day.

In my case, criticism of Soviet politics was that I saw them as profoundly conservative. The oft-repeated claim that "socialist" countries would outperform capitalist economies was chasing victory in a race to the bottom. The reports of the Club of Rome with their dire predictions of economic collapse due to resource depletion may have been exaggerated, but its methodology was and still is clearly applicable. As a technologist, I also saw that any technology which cannot be understood by users has an element of oppression which may well outweigh its social value. The very decision as to whether it does is often beyond the user's capacity to decide. That users' see no dichotomy in owning obscure technology is one serious aspect of alienation.

Is Luddism Possible?

Calling myself a Luddite incorporates a feeble attempt at humour. Real Luddites suffered starvation and oppression. As I don't live in a shortage society, these are not my problems. This doesn't mean that you and I are not deprived. We are deprived of the sort of human society and culture for which humans are best suited. The force which increasingly prevents this human contact is class-based technology.

I refer to it as class-based because as a tool of exploitation it serves the interest of the dominant class. It does this in a variety of ways; materially by forcing one class into wage slavery, ideologically by reducing human relations to dollar values and culturally by relegating traditions and historical experiences to a mass-produced scrap bin. Capitalism is the destroyer and technology supplies many of the tools.

Unfortunately, while much of this was clear to the early Luddites, nowadays technology can increasingly masquerade as a set of solutions rather than as an agent of our ills. Besides, whether by accident or design, technological society has made it difficult if not impossible to stay clear of its impositions and blandishments. Our society makes it impossible to avoid being a consumer; even those leading a would-be hippie existence can only do so by living off the scraps that fall from the consumers' table. Workers can only get to work, in many instances, by owning cars; sustenance can generally only be got by paying money in the market-place.

The skills that allowed people to keep alive have had to be traded for alienated skills of distribution and trading. Over it all hangs the uncertainty of what is nowadays described as the "flexible work situation". Even those well off cannot understand the processes that put food in their mouths and clothing on their backs. They define their needs in terms of what society prescribes – the bigger house, the "faster" car (even if it stands in a bumper-to-bumper queue), instead of closer relations with humans. Even women who generally, for one reason or another, had to remain in closer touch with the basics of life, are affected.

The result is an ever faster race towards human and environmental destruction. Indeed, it is the latter where my litany of disastrous unreality finally slows down and, I hope, comes to a halt. It is technology which had increasingly given us, in the "developed" world, an illusion of human mastery over reality. "Unlimited" cheap energy applied to massive machinery allowed us to tear up the earth, tear down the trees, use chemicals to rape the soil, all at little or no cost. Advances in medical technology, having defeated many of the world's most serious scourges, would ultimately provide us with immortality. The basis had been laid, too, for universal and everlasting peace. This was surely the road to universal happiness!

As you and I know, it was not to be so. Many of the reasons for this, I hope, I have touched on in the preceding pages. Many wiser heads have claimed that this is because human development has not kept pace with material progress. In these pages I have argued the opposite; I think that, in many instances, material developments have inhibited human society. This may be due to the way in which the best laid plans of mice and men can, as

Robbie Burns used to say, oft aye, In our society however the very intention of developers of technology and their financial backers is frequently driven by mean and nasty motives. And as the power of individuals grows in proportion to their ruthlessness, it would be ingenuous to ascribe the negative aspects of our society to human error. They are far more likely to be due to deliberate bastardry. How can this be reversed, if at all?

Dreams Of Revolution

After the end of World War II hopes on most of the Left ran high. Fascism had been defeated. The war had allowed workers and their organisations in many capitalist countries to occupy higher places within the bourgeois hierarchy. The expansion of the productive apparatus could now be turned to the improvement of the lot of the common people. Universities became hotbeds of Marxist studies, even if the philosophies that were evolved were often incomprehensible to ordinary people. Communist parties in Europe attracted huge slabs of votes. If the millennium had not yet arrived, it clearly was just around the corner. In Australia a least one Communist party pundit talked about the imminent revolution.

As subsequent events showed, a world communist revolution then would have been a disaster, politically, environmentally and from the human point of view. But then, it wasn't going to happen. The capitalist system was far too flexible to collapse under the pressure of a non-alternative which would merely have replaced one form of technologically based hierarchical structure with another similar one. So, what has changed?

The Environmental Imperative

As against the artificial structures of financial empires, the realities of environmental constraints are unavoidable and indisputable. Even if their impact and nature varies with location and time, these impacts are undeniable and growing inexorably. They affect young people in two major ways: They will reduce their enjoyment of life and their health within their own lifetime, and they rouse their anger because thinking young people see much of the destruction as unnecessary. World-wide, they see the disregard of the old (in both senses of the word) power-brokers and they feel - quite naturally - disenfranchised. Many young people are no longer taken in by the concept that democracy is casting a vote once every so many years for someone you don't know from a bar of soap parading on some trumped-up non-issue for a party which is the spit image of its so-called opposition. In Australia and elsewhere in the so-called parliamentary democracies many young people already show a profound disinterest in the parliamentary farce. Many cannot be bothered to enrol for the vote. More positively, environmental matters elicit a deep response in many of the young.

Unlike many of my lefty contemporaries half-way through the 20th century, I don't want to predict an immediate revolution. When it comes will depend on a large number of unpredictable factors and on human interactions. It is equally unclear just how traumatic it will be for the human populations around at the time. However, unlike the largely political changes predicted in the past there is an inevitability about this mostly environmentally based change. It is up to humanity to develop enough sense to limit the disasters which may yet accompany the changes to come.

You may notice that I don't use the term "it is up to us" commonly employed by many environmentalists. We are living in a class society, and to regard all of us as equally responsible for the world's ills and equally capable of rectifying them is to fly in the face of reality. But this is another story.

The Good News

Is there a light at the end of this tunnel? Not only do I believe that there is now some chance of political redirection, I also feel that there is now a possibility of reversing the drive to counter-productive technologies, particularly those of the "vroom-vroom" variety. In recent years, for the first time ever, human interaction has been seen to have a major impact on the world's climate.

Unfortunately, as always, it is the poor of this world who have had to bear the brunt of the negative effects of the change, from the Indian sub-continent to the Arctic, from New Orleans to China. But rich countries, too, have had a whiff of what is to come. And even if this has so far not radically changed the lifestyle of the wealthy in wealthy countries, it is bringing about a profound if not rapid change in their psyche.

Hitherto, the strategies of the ruling elites in rich countries have concentrated on denying the existence of the global climate threat or at least trying to minimise its importance. Much of this still goes on, with the handful of tame scientists who deny global warming being shipped around the globe and given endless air time, as well as highly produced "documentary" opportunities. Not much longer. Nowadays the environmental reality, having made it to the news pages of papers and journals is actually invading the financial section. And having for years depicted conservation as death to business, the environment is now turning into a "sector" which presents "opportunities". Mind you, although people of all ages are now being increasingly affected by climate change, it is still terrorism - which affects a minute proportion of the population - which gets most of the publicity and the bulk of big government bucks.

Technological Answers

While, predictably, fuelled by the financial opportunities offered by some alternative energy production concepts much tax money is being handed to the coal and uranium industries, in recent years, some research has also gone into the centuries-old Amazonian soil enrichment methods described in *Diatribes 169* which perhaps offer one realistic means of removing the excess of CO₂ from the atmosphere other than the crazy schemes suggested by (and for the benefit of) the coal industry. It will require a very large effort by all of us to publicise and support this and other alternative energy production schemes.

Above all, we need to remind ourselves and others that if there is any hope for humanity, it lies in making people realise that there is no joy in acquiring more goods and burning up more energy. But then, if you have got so far in this book, you will have gathered that much already. Best of luck!