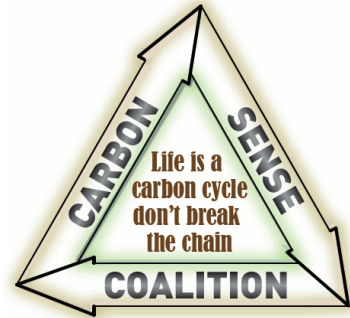


Carbon Sense

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Opposing pollution of the atmosphere and the mind.

CS 100912 Sept 2010



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<http://carbon-sense.com/wp-content/uploads/2010/09/coal-and-oil.pdf>

Keywords: Coal, oil, steel, tools, food, electricity, smog, Asian Brown Cloud, whale oil, forests, kerosene, harvesting.

Coal & Oil Built our World Feed our People & Saved the Whales and the Forests.

by Viv Forbes

The use of tools, weapons and fire is the feature that most distinguishes the human race from other species. It is the key to human survival in a changing and often adverse environment. Carbon products are the essential ingredients of these tools. The history of coal and oil explains the creation of the modern world. For most of the world's population, carbon fuels and the tools they create are all that stands between them and hunger or starvation.

Natural Climate Change

Just 12,000 years ago earth was suffering from a real climate crisis – global cooling.

Massive ice sheets covered Canada and Northern Europe. Many species of animal and plants that failed to adapt to the new climate were extinguished. A few hardy surviving humans hunted with Stone Age weapons. They kept warm with fires of wood or dung and slept in caves and igloos, or in tents and tepees made from animal skins. Meagre lighting was provided from animal oils or beeswax. Life was a continual battle to acquire carbon foods and carbon fuels.

Suddenly, about 11,000 years ago, natural cycles put the earth into a warming phase. Oceans warmed up, ice sheets melted and sea levels rose. The warm oceans expelled carbon dioxide which promoted plant growth. Increased evaporation put moisture into the atmosphere and produced more precipitation. Grasslands and forests reclaimed the land as the ice receded towards the poles.

Life became easier for humans with more vegetation and more herbivores providing more food sources. Showing more sense than today's global warming alarmists, they blessed the warmth and organised spring festivals. Many, showing a better grasp of climate reality than today's tree huggers, became sun worshippers.

But all humans still relied upon Stone Age tools and biofuels like wood or dung.

Charcoal Produces the First Metals.

A mere 6,000 years ago ancient potters discovered how to smelt copper from the beautiful blue azurite and green malachite they were using to decorate their pottery. They probably used charcoal from wood to achieve the high temperatures and reducing conditions required to produce metals from natural ores.

Copper is a beautiful and useful metal, easily worked and corrosion resistant, but too soft for some applications. It was widely used in ancient societies for ornaments, jewellery and utensils for storage, drinking and cooking.

About 5,000 years ago, smelter-men discovered that adding other metals like arsenic, tin, lead and zinc to copper produced harder alloys called bronze and brass. These metals were more useful, particularly for knives, swords and spears.

Iron ore is much more abundant than copper ore, and iron was known to the ancients. Tutankhamen's tomb contained a dagger with a handle of gold and a fine blade of untarnished iron. But because of the higher melting point of iron, higher than could usually be achieved in an open fire, iron tools were rare and little used.

Marco Polo mentioned that the Mongolians were using coal 6,000 years ago, mainly for carving a brilliant black plastic-like coal called "jet" into ornaments but also for heating their baths.

The Hittites of Anatolia made marvellous iron weapons and tools over 3,000 years ago, but kept the secrets of their metallurgy from most of the world.

China also discovered smelting. The Emperor's terracotta army buried 3,000 years ago and unearthed in the 1970's was armed with spears and arrows made from sophisticated alloys. The Chinese had a big iron making industry 2,000 years ago, using charcoal to smelt the iron ore. As in other countries, this caused massive deforestation until coal replaced wood for smelting.

Roman armies during the Roman Warm Period, about 2,000 years ago, used bronze swords and spears but relied largely on the disciplined muscular energy of the legions.

Then just 800 years ago, Mongolian hordes armed with bows and arrows and riding hardy Asian ponies showed the world the effective use of animal energy. Horses, donkeys, camels and oxen (all powered by carbon biofuels) added greatly to the energy available to medieval humans.

Coal Saves the Forests.

At about the same time English blacksmiths started using a black sooty rock for their smelters and forges. At that time, timber was the most valuable energy product for the growing population – forests were felled for building, cooking, heating, making charcoal, smelting and masts for the sailing ships of the growing British Navy. As the forests disappeared, this new fuel, black coal, was more widely used, filling cities with smelly fumes.

Coal has always been the friend of the common people – it is abundant, cheap and full of concentrated energy. However the English nobles (who owned huge private forests) organised protests against the use of this “dirty” fuel by the peasants. King Edward I banned its use 700 years ago. First offenders were to be punished with “great fines and ransoms”; second offenders were to have their furnaces smashed. Had this first war on coal succeeded, modern civilisation would not have emerged. Today a new rich pampered Green aristocracy is again trying to deny the peasants the benefits of cheap, reliable coal energy.

Coal & Steam become the Work Horses for the World.

Carbon fuels (wood and coal) were used to produce heat and smelt metals for thousands of years before it was discovered that the energy of carbon fuels could also be harnessed to provide motive power.

Just three hundred years ago, all transport and machinery relied on muscle power, or power generated by solar energy via windmills, sailing ships and water wheels. This was the heyday for alternative energy.

In pioneering days in Australia, bullock teams hauled wool from the farms and logs from the forests. Horse teams worked the farms and hauled the wheat. Copper ore was hauled on trains of donkeys from the mines in Central Queensland to go on sailing ships to the smelters in Wales. As a result of this enormous real transport cost, men had to labour long to earn staples like bread, butter and tea. Labour was cheap, but anything manufactured or transported was relatively very expensive.



**Transporting Bricks before the coming of Diesel Trucks.
Somewhere in China today.**

Then in 1712 AD, just 300 years ago and not long before Captain Cook was repairing his sailing ship after its collision with the Great Barrier Reef, the first steam engine went into use in England pumping water from a coal mine. Soon steam engines were driving factories. Then came steam transport – rail locomotives, steam ships and traction engines replaced horses and sailing ships.

No longer were oxen, horses and humans forced to pull the ploughs and coaches or man the pumps, windlasses and treadmills - coal energy freed them, and saved the forests. King Coal was producing the heat and tools for the modern world. Then, with the invention of steam engines, coal moved the world.

The Magic of Electricity

The latest and probably greatest contribution of coal and steam power to our world is electricity. Modern life is impossible without this magic clean supply of “coal by wire”.

The first steam powered electric power station, designed by Thomas Edison, was built in New York in 1882.

Electricity has totally transformed our world within just one century. It delivers light, heat and motive power to every appliance of modern life – kettles and computers, commuter trains and elevators, heaters and coolers, hair clippers and dental drills, microwaves and X-ray machines, pumps and compressors, cash registers and poker machines, water pumps and sewerage plants, printing presses and TV stations, draglines and dodgem cars, factories and refineries.

Electricity Clears the Air

Coal has always been the friend of the common people – abundant, accessible, cheap, simple and a reliable source of heat and energy. As forests were stripped of wood in the depth of the Little Ice Age, around 300 years ago, they turned to coal for domestic heating and small industries.

Every human activity affects the environment, especially open fires in enclosed spaces. Igloos were polluted with burning seal oil; the walls and ceilings of caves were blackened with soot; tepees were polluted by smoky fires; Indian mothers inhaled smoke from burning cow dung; night clubs were polluted by cigarette smoke; modern humans can be accidentally poisoned by carbon monoxide from open fires burning wood or gas in closed up rooms or schools.

The widespread burning of coal in open fires and dirty furnaces in cities like London and Pittsburgh eventually created terrible air pollution. A combination of soot, smoke and fog plus sulphur dioxide gas combined to form deadly smog. The Black Fog in London in 1952 was caused when a thick fog plus a temperature inversion trapped the polluted air close to the ground. Over 4 days this fog became so dense that cars and buses had to stop, it seeped into homes and theatres, visibility was reduced to inches and maybe as many as 4,000 people died. Fifty bodies were removed from one city park in London. This terrible experience brought action. At long last the burning of soft coal in open fires was banned in London.

But it was not Parliament that cleaned the air – as in Edward’s day, poor people continued to burn coal when the alternative was pollute the air or die of cold. For the poor people, life was still a battle for food to eat and energy to warm their houses.

What cleared the air in “The Big Smoke” was invisible energy – the magic of electricity. Electricity captured the energy of coal in distant power plants. They used hotter and more efficient combustion in well designed furnaces that burnt the coal more completely and more cleanly than open-grate fires. Early power stations still emitted some pollutant gases but these were dispersed in tall chimneys in less populated areas. Clean invisible silent energy was delivered by wire to every home in the city.

The major emissions from modern well designed coal fired power stations are water vapour, carbon dioxide and nitrogen – all harmless normal atmospheric gases essential for all life.

See: <http://carbon-sense.com/2010/06/03/coal-combustion/>

Carbon Dioxide is Not a Pollutant

“It’s hard to think that a gas as friendly as carbon dioxide can be a pollutant. Carbon dioxide puts the bubbles in your soda pop and the holes in your bread. It extinguishes fires. Frozen, it’s dry ice. It isn’t noxious, or caustic, and it doesn’t damage lungs, poison ecosystems, or destroy vistas.

...

In fact, CO₂ is essential to life on earth. We earthlings are carbon-based life forms, and so are the plants around us. Carbon dioxide is the gaseous part of the carbon cycle ...”

Barbara Freese, “Coal – a Human History”, p182.

Barbara Freese was assistant District Attorney in Minnesota for 12 years, responsible for enforcing air pollution laws.

She is no great friend of the coal industry and a warmist.

However Barbara writes beautifully and, apart from her warmist beliefs, she researches her subject, and sticks to facts.

The world’s biggest air pollution problem today is not clean colourless non-toxic carbon dioxide. It is a modern version of the London Smog – it is the Asian Brown Cloud. Generated in the dust blown from the Gobi Desert, it is then added to by millions of open air cooking fires, cremation fires, forest fires, rubbish fires, open air heaters and backyard boilers and furnaces from India to Indonesia to China and to North Korea. And as cars start to pack into crowded Asian cities, the problem will get worse. This cloud affects weather and health and sometimes drifts right across the Pacific to America.

The best solution is the same as it was in London – clean silent non-polluting electricity delivered by wire to every Asian home. More use of electric powered transport in crowded cities would also help.

Keeping the Lights on.

Today, in all rich western democracies, climate alarmism is demonizing carbon fuels. When this is combined with nuclear phobia in some sheltered societies, we have set in train a momentum that threatens our ability to keep the electric magic alive.

In the right circumstances, hydro, geothermal and tidal power can provide useful electricity. But they are unlikely to add greatly to Australia's future needs.

Solar has a role when combined with batteries in remote locations or portable applications. Wind is good for pumping water (with tanks as storage batteries), sailing ships (with backup diesel motors) and very little else. However, without silly levels of subsidies from tax payers and consumers, or crippling electricity prices, solar and wind power are unlikely to add more than a token amount to Australia's base load power. So stupid has the green zealotry become, that power stations are being built today designed to run on wood. Can whale oil lamps be far behind?

In Australia (where nuclear power is banned) the only fuels capable of generating reliable, cheap and abundant electricity are carbon fuels – black coal, brown coal, oil and gas.

Gas and oil can be used to generate electricity, but are generally more expensive and better reserved for transport vehicles, plastics, petrochemicals and fertilisers. That leaves the coals as our best option for keeping the lights on.

Yet foolish politicians who have never looked at the realities and costs of power generation have assisted to demonise carbon and nuclear energy and encourage the use of proven failures such as wind and solar. Let those who wish to bet their futures on toy power do so at their own risk and expense, but don't force the rest of us to make the same gamble.

Oil saves the Whales

Like coal, oil is a naturally occurring hydrocarbon. Crude oil has been seeping into the oceans and onto land for longer than humans have walked the earth, but only very recently did humans learn to produce and harness the energy of this liquid carbon fuel.

At a time when the first squatters and prospectors were moving into North Queensland with their horses, cattle, sheep, drays and panning dishes, the first bore hole drilled to look for oil was sunk in Pennsylvania in 1859, just 150 years ago.

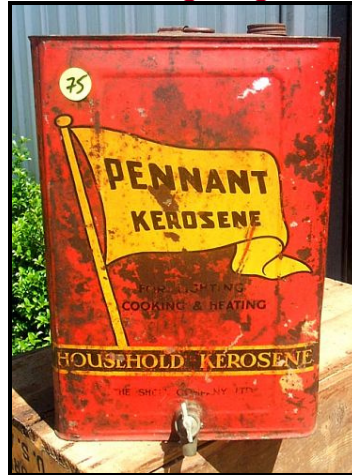
At this time, whale oil provided home lighting, and fleets of whaling ships scoured the seas for whales. Whales faced extinction.

Responding to consumer needs, the first great product from crude oil was kerosene. This new lighting fuel was cheaper and cleaner than whale oil and swiftly replaced it.

Coal gas lights started to illuminate city streets, but on every farm the kero light was mother's pride and joy. Some had beautiful ceramic bowls, brass fittings and very efficient circular wicks. They also gave out friendly heat on a frosty night.

Many of the early tractors also ran on kerosene. Even today on some old farms you can find the remains of rusty square metal four gallon kerosene tins in the rubbish heap.

"Household Kerosene – for lighting, cooking and heating".



It was kerosene, not Greenpeace, that saved the whales.

Coaches for the Common People.

About 150 years ago, Europeans were perfecting internal combustion engines which ran on coal gas.

By 1900, just a century ago, the first cars were powered by combustion engines using gasoline. Oil took over from coal the job of providing power for transport – cars, trucks, ships, planes, bikes, dozers and tractors.

Prior to Henry Ford, grand coaches were reserved for the nobility and the rulers. The massive horses in ornate harness, the outriders and the liveried coachmen were designed to keep the peasants in awe. (Today the nobility ride in black limo's with uniformed chauffeurs and police escorts.)

But Henry Ford had two great goals – a Model T for every working man and a Fordson Tractor for every farmer. He paid his workers well, so they could afford a Model T. And he subsidised the price of tractors so farmers could afford a Fordson.

Some of these old Fordsons, and the little grey Fergies that came later, are still working today. Unlike the horses they replaced, they are easy to catch, are fed only when they work and do not demand a jam tin of corn and a slab of hay every day of their life, working or not.

Coal produced the steel, oil produced the horse power and Henry Ford combined them to give a horseless carriage to the common man and a horseless tractor to the farmer.

Oil Power replaces Horse Power to Feed the Cities

Just a couple of centuries ago, our ancestors ploughed with wooden ploughs, cut hay with scythes and harvested crops with reaping hooks. However, despite their best efforts, hunger and famine were regular visitors in most parts of the world.



**Ploughing before the age of Diesel Tractors and Steel Ploughs.
(somewhere in China today).**

Even when I was a child, my father ploughed with draft horses, my mother cooked on a wood stove, and we used kerosene lights and candles. There was no electricity, refrigeration, television or telephone.

Harvesting Wheat with Horse Power, 1905.



Twenty-horse harvester at work in a field on a Van Nuy-Lankershim ranch, California, 1905

**Today one man with a Diesel Harvester would replace
20 horses and 5 men to harvest much more grain.**

During this era of “Horse Power Harvesting” there was far less surplus from the farms. Even a small farm had a couple of employees, a team of draft horses, a couple of stock horses, and ponies for the kids to ride to school.

This big “Horse Power Army” needed to be fed, every day, whether they were working or not. There was always a barn or hayshed for storing grain, chaff and hay – the biofuel needed to feed the horses.

There was another problem with horse power harvesting. Timing is critical when harvesting crops. If harvested too soon, the grain is green and it may rot in the bags or silos. If harvesting is too late, the grain may fall or the stalks droop, or birds will attack the crop. And if it rains at a critical time, the whole harvest may be lost.

Cultivation and planting is also critically dependent on moisture content of the soil. Once the time is right, the operation has to be done quickly to maximise results. Horse power agriculture often found the weather changing with the operation half done. No one could afford to keep enough horses to do the job as swiftly farmers would like.

My grandfather owned a huge steam powered traction engine that pulled implements and wagons, and drove wheat thrashing machines. This one machine, fed with wood, replaced the 20 horses. As more tractors, helicopters, quad bikes and trucks replaced horse power, all the grain previously fed to horses became available to humans.

With the invention of diesel engines and mechanical harvesters, the harvesting of wheat became a very efficient operation in which massive quantities of grain are delivered to silos with very little loss because of bad weather, and no grain consumed by numerous horses and farm labourers.

Harvesting Wheat with Oil Power, 2010.



Wheat Harvesting, Colorado, 2010.

The use of grains to produce ethanol for tractors and motor vehicles is a return to the past when much of the farm product was eaten by horses. Except now, food grain is eaten by motor cars. It is a recipe for high food prices and shortages whenever there is a weather crisis.

Since coal and oil became our servants, providing power for ploughs, harvesters, fertiliser, transport and refrigeration, the world has seen an unprecedented abundance of food for the common people.

The Never Ending War.

The harnessing of energy from coal and oil and the use of coal and coke to produce cement, steel and other metals has allowed more people to live in more safety and comfort than ever before. For those lucky enough to share their benefits, these carbon fuels have relieved the endless human battle to get enough food and energy.

But like the English nobles and King Edward 1,700 years ago, the leisured and privileged classes are again trying to promote their vision of a bucolic green world by banning or rationing the use of carbon energy. Secretly many of them also want to see far fewer of us common people messing up their world. They also want to give unelected international cadres control of the taxes that could be yielded if they gained control of all carbon energy. "Environmentalism" has the same goals as every other "ism" that has enslaved men – total control of all productive processes and people.

Coal is the major target of deep green witch doctors. Oil is the other. Both are carbon fuels (strictly hydro-carbons).

The weapons they use in this war on carbon fuels are scare stories.

Their current number one scare story claims that "carbon dioxide emitted by burning coal and oil will cause dangerous global warming". There is no evidence to support it.

This scare is faltering so new ones will be contrived.

Any scare will do – bushfires, droughts, floods, tornados, heat waves, snowstorms and disease are all blamed on this innocent, harmless but essential friend of all life, carbon dioxide.

The latest blow in the war on coal is a proposal from the Government of Queensland (one of the biggest exporters of coal in the world) to ban coal exploration and mining on "strategic cropping land".

And the BP oil spill in the Gulf of Mexico was a godsend to stir up the war on oil – "*never let a good crisis go to waste*". The deep green alarmists were deeply disappointed when no oil was spilt in the latest oil well fire in the Gulf of Mexico.

Coal and oil have built the modern world and now support its vast population. Those urging a war on carbon fuels, whether they know it or not, are urging a return to the days of horse transport, wooden ploughs, unremitting labour, periodic famines and wars.

This article was written by Viv Forbes with editorial assistance from several members of the Carbon Sense Coalition. 10 September 2010.

REFERENCES:

For a comment on the proposed ban on development of “strategic cropping land” see:
<http://carbon-sense.com/2010/09/04/cropping-land/>

For a review of the great world oils spills, see:
<http://carbon-sense.com/2010/08/23/oil-spills/>

For a discussion of the waste products from coal combustion see:
<http://carbon-sense.com/2010/06/03/coal-combustion/>

For a history of coal see:
Freese, Barbara, 2003, “Coal, a Human History”, William Heinemann, 2005, Arrow Books, 2006.

For a history of metals see:
Raymond, Robert, 1984, “Out of the Fiery Furnace – the Impact of Metals on the History of Mankind”, Macmillan, Australia.

Alexander, William & Street, Arthur, 1964, “Metals in the Service of Man”, Penguin Books.

Viv Forbes is Chairman of the Carbon Sense Coalition which opposes waste of resources, opposes pollution, and promotes the rational and sustainable use of carbon energy and carbon food.

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