

CARBON CHRONICLES

Full libretto with notes

ACT 1 – BEGINNINGS

(On stage are elemental chorus, solo narrator, carbon)

Elemental Chorus

Behold us, energy made matter, offspring of stellar conflict, exploding stars, super novae.
Behold us, elements roaming through space, searching for a home, for a few billion light years.
We are cosmic imagination.
Behold our beauty and our power.
Hydrogen and helium, oxygen and carbon, silver and gold,
Tantalum, uranium, niobium.
And scattered through the universe
Galaxies of diamonds, another form of carbon.
Behold us, energy made matter.
Behold us, in our beauty and our power. ⁱ

Solo Narration

And so they travel through space time, millions of light years.

Chorus

Billions and millions.....

Solo Narration continues over chorus above

Forming galaxies, matter, dark matter, super structures, quasars, filaments and strings.

Solo Narration alone

And then they become another star – our sun.
And from the sun they form the planets, our earth and moon

instrumental improvisation

Chorus of Elemental Beings

This is our home for a few billion years, while the planet lasts.
Here we find our resting place, our new being.
We settle in the core, the crust, the mantle, we form an atmosphere ⁱⁱ

(They call out to each other – ad lib)

I stay on the surface.....I go to the mantle.....I'm radioactive, I'll renew the boiling
core.....where are you.....where, where, where.....

Carbon Solo

I, carbon, I will take many forms.
I will be part of a mystery called life and also its destroyer.

instrumental improvisation

Chorus

Billions and millions.....

Solo Narration

The earth begins to cool
Land masses form
Tectonic plates collide and crash and move apart
Continents emerge – Pangea, Laurasia, Gondwanaland, Africa. ⁱⁱⁱ

trumpet solo

Chorus

Millions and billions.....

Petra Oleum Call and Response

Petra oleum, ^{iv}
Petra, petra oleum, oleum.
Petra oleum, petra oleum, oleum .

Oleum oleum oleum oleum...
(continues under the following)

Methane, propane, butane, ethane, penthane.
Nitrogen and oxygen and sulphur,
Carbon, hydrogen.

Carbon trumpet ad lib on top once oleum, oleum, established

(Ancient Plankton enter)

Chorus of Ancient Plankton

We were life when the earth was young x 2
Plants and creatures floating in the sea
Sinking down to the ocean depths ^v

(Chorus splits – 1 line each)
Rivers flowing, long ago, when the earth was young.

Billions and billions and billions

Carbon Solo

Now my journey takes me back into the earth
In the remains of plants and creatures
Down, down, down, down, down.
And what awaits me here,
I cannot tell.

Chorus

Billions and millions.....
(Under the billions and millions improvise on)
Carboniferous, permian, triassic, jurassic, cretaceous, tertiary, quaternary,

ACT 2 – EXPLORATION AND EXPLOITATION – THE SCRAMBLE FOR AFRICA

(On stage have remained elemental chorus)

Chorus of Elemental Beings

(grumbling improvisation)

What is disturbing us, spoiling our peace.....Leave us alone in the earth to sleep.

Gold

(emerges laughing from the huddle of elements)

Ha, ha, ha, ha x 2
They are in love with me
They are addicted to me
They cannot guess at my ancient history
Gold.....

Wars will be fought for me
Slaves will be bought with me
People will die for me

I can be hard to find
I can prey on your mind
Be a trap and a bind

My glitter will obsess you
And my fickleness distress you when you can't get me enough

I come from far away
And here on earth I stay
But I'm not easy to find
Come and get me, come and get me, come and get me.....

(Enter Henry the Navigator)

Henry the Navigator Solo

I am Henry the Navigator ^{vi}
I desire the golden joys of Africa

With the grace of God my men will sail
Round the coast and will not fail
To win the land for Christ and King
Convert the heathens and then bring
Gold dust, pepper, ivory
Engage in a spot of slavery
To keep life sweet and sugary
In European nations
We call it civilisation.

instrumental echo of the tune of 1st 2 lines or sing

I am Henry the Navigator
I desire the golden joys of Africa

With the grace of God
We will prevail
And with the help of wind and sail
We'll reach the golden meadows
Find our human cargoes
Engage in a spot of slavery
To keep life sweet and sugary
In European nations
We call it civilisation.

(Elemental uproar)

Carbon trumpet solo

(Diamond enters)

Diamond Solo

I am diamond, just a fancy form of carbon
But I got very hot and squashed.
Don't know how I got in such a fix.
Torn from my rock and cut into bits
By a big-headed hairless ape.
I am very very hard but I am not so tough.
I'll shatter into fragments if you bash me hard enough.
If you burn me I'll disappear.
Humans make such a fuss about me.
They'll murder and steal just to get a piece of me.
They think I'll last for ever more.

Carbon Solo

Glittering throughout the galaxy
Really very very pretty
Not like that relative coal.

(Enter Diamond Prospectors)

Chorus of Prospectors/Diggers

There's a fortune in the ground, fortune in the ground
And we're going to get it, going to get it, going to get it.
We'll freeze in ice, we'll thirst in desert
But we want to get it, want to get it, want to get it.
We'll take any risk to turn land into dollars
Diggers and prospectors and excavators
Living off brandy and cigarettes.
We've got the fever, we've got the rushes

We know there's a fortune in the ground
And we're going to get it, going to get it, going to get it.

(They degenerate into squabbling and fighting over their claims)
That's mine.... I got here first.....Hands off.....

(Enter Cecil Rhodes) ^{vii}

Cecil Rhodes Solo

Stop this unseemly chaos.
I claim the rights for Britain and myself.
Someone's got to take control,
Get the Boers to behave,
Get the Africans to slave,
Pile the profits good and high,
Even though a few may die.
I dream of a world cartel, mighty and powerful
We'll use slaves and convicts to do the work,
Keep them locked up so they cannot shirk,
Or steal any profits from me.
We'll form a divided state
It will be called Apartheid
That's my legacy.

(Enter Leopold ^{viii} licking his lips, cutting of the cake of Africa with Bismarck, Lord Derby, et al)

Leopold

Comme c'est magnifique, le gateau afrique x 2

All

We all want a slice of this magnificent cake
We all want a bite it makes us salivate
To think we can create our own state, our own state x 2

We'll rename the places and subdue the races
We'll have free labour and endless resources
Cheap fodder to put in our armies

(Improvise place names)

Leopoldville, Rhodesia, Congo Free State, Victoria, Nigeria, Freetown, South Africa,
Port Harcourt, Cape Town, Monrovia.....

Chorus of Colonialists

We are the thin white line upholding King and Nation
Some call it occupation, we say its civilisation.
And if there's any problems, and they don't understand
How beneficial it will be, to let us take their land
Whatever happens we have got
The Maxim gun and they have not. ^{ix}

Carbon trumpet solo

(Enter oil prospectors)

Oil Prospectors

There's a fortune in the ground, fortune in the ground
And we're going to get it, going to get it, going to get it.
We'll freeze in ice, we'll thirst in desert
But we want to get it, want to get it, want to get it.
We'll take any risk to turn land into dollars
Diggers and prospectors and excavators
Living off brandy and cigarettes.
We've got the fever, we've got the rushes
We eat oil, we breathe oil,
We sleep oil, we dream oil
Our fortune in the ground, bubbling all around.

(Enter Rockefeller)

Let there be light

Let there be light, ^x banish the night
Who needs the moon, when soon
Our cities will be oceans of brightness and pleasure
Bringing in money for ever and ever and ever.

Let there be light, work through the night
It's the capitalist dream - twenty four hours of working and burning and earning
A neon strip environment, an eternal working day
They'll never know the difference between dawn and dark, work and play.
Human endeavour, what treasure, buying and selling, for ever and ever and ever.

Frozen food and plastic plates,
Easy clean and easy wipe,
Easy come and easy go,
Live the dream of the machine.
Keep your surface sparkling clean,
Feed the children on baked beans.

Let there be light, banish the night, who needs the moon.....*(this is repeated over the lines below)*

Live the dream of the machine,
This is what you waited for,
Through the dreary years of war.

(Sing together)

It's a family thing, going shopping.

Let there be shift work,
Let there be casinos,
Light up the streets

And dance all night at discos. *(these 4 lines are sung over the following)*

Let there be light, banish the night
Shop till you drop, can we ever stop,
Working away, night and day

Carbon trumpet solo

(Enter Combustion engine - noisily)

Song of the Combustion Engine

I am fire, I am power and I roar into the future.
I am human desire to change the face of nature.
Winston Churchill used me to power up the navy.
Adolph Hitler couldn't win when the oil was running thin.

I roar into war and the future lies before me.
I am treated like God and humans adore me.
If you let me multiply my embrace can choke you all.
Hard though you may try you will not be in control.

I am trains, I am planes, I'm family Sunday outings.
I take children to school, I reap the summer harvests.
I speed around the planet on land and sea and in the air.
Forever burning more and more.
I send you rushing everywhere.

I am fire, I am power and I roar into the future.
I am human desire to change the face of nature.
Empires have been built with me and they will fall with me.
Nothing is untouched by me. Did I really set you free?

Carbon

I'm expanding, I'm expanding, as the engines burning, burning..... *(over instrumental improvisation on chords of song above)*

Naming of Oil Corporations

(Names Ad lib)

Standard Oil
Gulf
Chevron
BHP Billiton
Exxon Mobil
Petrochina
Saudi Aramco
Luke Oil
National Iranian Oil Company
Total/Unocal
Statoil

Occidental
Qatar Petroleum
BP
Gazprom
Nigerian National Petroleum Company
Petroleus de Venezuela
Shell

(Enter ancient plankton)

Ancient plankton/Hydro-carbon Lament

We were at rest in the rocks
At peace with nature and the earth
The ancient people respected us
And held us sacred
But now we have been misused and abused
Turned to poison
Killing life
Turned to poison
Death and danger.

(Enter Earth spirits whispering with instrumental improvisation)

Earth Spirit Whisper

We are the spirits of the ancestors
We are forests and rocks and air
We weep for the beauty that is lost,
We mourn the destruction.
We can only help you help yourselves.

(Enter 4x4 drivers)

Anthem of the 4x4 drivers

We're driving on the freeway and we've got a place to go
Armageddon beckons – and we can't wait – oh no.
We'll take the whole world with us, even though they may protest
We've got profits to look after – we don't care about the rest.

Chorus

Armageddon beckons, Armageddon beckons, Armageddon beckons, we can't wait.
Armageddon beckons, Armageddon beckons, Armageddon beckons, we've got a date.

Ice caps may be melting, islands may be drowning
Greenies may protest – and liberals may be frowning
Don't care if polar bears have no place to go,
It may be sad but the market's got to grow.

Chorus

We're driving on the freeway, and you can't stop us now
We'll take the whole world with us – and not worry how
We might affect the planet – 'cos we rule OK
Armageddon beckons but we'll win the day.

Chorus

We're driving on the freeway and the water's all around
But we'll just keep on going 'cos we're freedom bound
Don't care about the others when they cry and moan
We want to rule the world and we'll look after our own.

Chorus

Armageddon beckons, we want to get there fast
Even though the journey may be our last.
We'll take the whole world with us – it's got to go sometime
Don't be sentimental – just get in line.

Chorus (with slight changes as below)

Armageddon beckons, Armageddon beckons, Armageddon beckons, we can't wait
Armageddon beckons, Armageddon beckons, Armageddon beckons, we can't be late
We've got a date, a date with fate.....(*improvise*)

Evocation of the Niger Delta

Improvisation, voices and [instruments](#), each comes up with own sound to repeat and develop.
Include watery sounds

Chorus about Ken Saro-Wiwa

Framed, framed
Falsely accused of murder
Put to death because you told the truth
Frightened those who wanted to keep the power
Loved the land and the life it held
Found yourself on a collision course with power and corruption,
An oil giant and a dictator.
Shame, shame
Who takes the blame, who takes the blame
For the destruction.
But justice will be done, justice will be done
The time will come, the time has come, the time has come. ^{xi}

(Chant names of Ogoni 9)

Saturday Dobe, Nordu Eawo, Daniel Gbooko, Paul Levera, Felix Nuate, Baribor Beri, Barinem
Kiobel, John Kpuine, Ken Saro-Wiwa.

(Enter spirits of resistance)

Chorus of Spirit of Resistance

We're the spirit of resistance, we're in all human history,
We turn up when we're needed, when the time is right.
Wherever there's oppression, we'll be in opposition,
Peaceful resistance to military might.
No oppressor lasts forever and the people are strong when they're altogether.
Those who long for liberty will not give up 'till they are free.

No more War for Oil

No more, no more, no more, no more, no more war for oil x2
And the people cry, and the forests cry, and the rivers cry, and the oceans cry,
No more deaths for oil.
Give back the land to the people, and the creatures and the plants.
All life is sacred
And though what is lost can never be returned
And the trees are cut down, and the forests burned
And the companies only care about their share
We will not be silent.
Justice must be done.
No more, no more, no more ,no more, no more war for oil x2
No more deaths for oil
No more war for oil

(Exeunt)

ACT 3 – TIPPING POINT

(Enter Uranium and Tantalum)

Uranium Solo

I am uranium. ^{xii}
I long to break from my bondage.
I feel so heavy.
Free me, free me to release my true power.
The vast energy within.
My ability to heal and destroy.

Tantalum Solo

I am tantalum. ^{xiii}
I transmit energy, carry electricity.
No fancy piece of jewelry me – but I am such a temptation.
For I am communication, part of human transformation.
All over Africa,
Wars are fought for me
People die in search of me,
Live dangerously.
They suffer in the Congo for me.

(Enter last remains of western civilisation)

Chorus of Last Remains of Western Civilisation

(to the tune of The Thin White Line)

v.1. We are the last remains of western civilisation.
We may have lost the Empire but we've got globalisation.
And we still follow the glorious tradition
Several centuries of expro -o- priation.
Whatever happens we have got the nuclear bomb and they have not.

Uranium Solo

Don't be so arrogant
You meddle with me, you meddle with me at your peril – I long to break free – and you will not be able, able to control me, you will not be able to control me

v.2. We are so excited
The Arctic ocean's melting
So we can get our ships through
And start to drill the oil out
And we will keep our hand in
However hard it seems
To negotiate successfully
With repressive regimes
Whatever happens, we'll make sure, we are the ones who profit more.

(Carbon enters)

Carbon trumpet solo

Carbon Solo

Now I am expanding more and more and more
Especially when these humans make war and war and war.

(Enter Dictator)

Dictator's Welcome Song

Welcome to my land of endless opportunity
Everything's for sale here except my own property.
And you don't have to worry about human rights abuses
The soldiers may be stupid - but they have their uses.

I've got diamonds and gold, and coltan for your mobile phone
If you'll help me develop a nuclear bomb
I can get you uranium.

The land's awash with oil.
We welcome any company that wants to excavate
So long as they share with me any profits they may make
And in return I will control
Rebellious local people and irritating NGOs.

(Chorus of Last Remains sing above the Dictator)

Chorus of Last Remains of Western Civilisation *(above)*

He's a bit of a liability
But probably quite trustworthy
So long as we don't upset his military.
We can invest here profitably
No unions to cause us worry
We can always bribe the military.

Dictator *(below)*

We'll also plant our land with biofuel to sell to you
And if the people starve the NGOs can sort that too.
Welcome to my land of endless opportunity.
Everything's for sale here except my property.

(Last Remains - Globs – sing along with the Dictator but they sing 'We' when the Dictator sings 'I')

We've (I've) got our (my) eyes on the Arctic too
Not that we (I) want to compete with you
Surely there must be some deal we can do?

We'll mine asteroids and deep sea vents
And all the untouched wilderness – we'll definitely find a deal we can do!

(Naturalist enters)

Naturalist Solo

Stop! Fools! Can't you see where this is heading? Soon we'll inhabit a barren Earth.

Naturalist's Song

Beware, beware, the age of loneliness draws near,^{xiv}
Think before you destroy the rest of life.
How will we survive the emptiness
And the loss of so much beauty?
Will we tell our children stories of the richness there once was?
Will we hear the sound of birdsong in the hum of our machines?
When the glaciers have melted and all the forests are cut down,
Will we see fading pictures on our big screens?
Beware, beware, the age of loneliness draws near,
Think before you destroy the rest of life.
How will we survive the emptiness
And the loss of so much beauty?

Dictator

Don't mind her - she 's always moaning – let's get the diamonds out.^{xv}
I'll call Fred – he's been polishing the same stone for years
(calls Diamond Polisher)
Fred
(Diamond Polisher comes in with various diamonds – old and fake - showing off etc)

Diamond Polisher's Song

I love and cherish these creatures of the underworld.
They are like children to me.
I don't care about the money they might make.
I just want to bring out their beauty.
They shimmer with light like water.
Each contains a galaxy of stars.
I can reveal their inner radiance
Make each one the beauty it wants to be.
I spend years getting to know one
Traveling a journey of light
And when I finish polishing – what do I see?
Myself, reflected and refracted into a thousand prisms of light.

(Naming of mines and peoples ad lib)

Kimberley, South Africa
Cullinan,
Argyle,
Panna

Orapa, Botswana
Letseng, Lesotho
Grasberg, Freetown, Papua
Nyamgiri Hills, Orissa
Tiwai Point, New Zealand
Devil's Bend, Peru
Archer Bend National Park
Chingola, Zambia
Rossing uranium mine, Namibia
Bougainville
Rosia Montana
Olympic Dam Mine, Roxby Downs
Pebble Mine, Nevada
Cree Nation, Beaver lake
Attawapiskat First Nation
Awajun people
Wik people, Australia
Yukpa tribe, Venezuela
Santal community, Bangla Desh
De Beers, Vedanta, Freeport McMoran
Anglo-American, Anglo-Platinum, Australia Gold, Monterrico metals, RTZ, BHP Billiton,
Comalco

(Old and fake diamond start squabbling)

Old and Fake Diamond Duet

Old diamond

You're a fake, you're a fake, you're a fake,
You'll ruin our reputation.
You're a fake, you're a fake, you're a fake,
You're unfair competition.

You're not wise and mature from deep within the earth.
A laboratory test tube was the place of your birth.
You're a fake, you're a fake, you're a fake,
And you should be ashamed.
You're a fake, you're a fake, you're a fake,
We are not the same.

Fake diamond^{xvi}

You stupid lump of carbon, you are arrogant and vain.
Don't you understand, we are part of a game.
You think you have such a special relation with humans
But they don't have such discrimination.
Do you know how many people die, trying to get you?
How many wars are financed by you?
You may think you sparkle brighter than me
But do you think any one else can see?
I have the same molecular structure as you.

Carbon is carbon, no matter what you do.

(ad libbing together)

Old diamond

You are such a pain, you'll ruin our reputation.
You should be ashamed, we are not the same.

Fake diamond

You are arrogant and vain.
We are just the same, we are just the same.

(They quarrel ad lib)

Take me – take me... I'm more beautiful... I'm better...

Last Remains/Globalisers, hereafter referred to as Globs

(sing accusingly to dictator)

How do we know we're getting a good deal?
Which is fake and which is real?

Dictator

Gentlemen, you have my my word.

Globs

Hmmm

Dictator

Trust me – or at least trust Fred.

Globs

(looking at each other)

Ummm...

(Chorus of Resistance - Patatistas - appear from a distance, with cakes, bicycles etc)

Globs

What's going on here? Are these – insurgents? You'd better get them under control – we don't support unstable regimes you know!

Dictator

Don't worry – I'll sort them out.
Anyway, you've got to wait for your uranium – you can't leave now!

Globs

(sighing)

Very true.

Patatistas Chorus

We are the Patatistas, we are resisters.
We turn up when we're needed when the time is right.
We use power from the wind and sun,
And we know how to run,
Entire TV networks on bicycles.

Chorus

We think and act collectively
We don't believe in hierarchy
We want to set the whole world free from slavery.
We don't believe in violence
It doesn't make a bit of sense
We'll share the world's resources equally.

We won't join the army, we think its barmy
To blow up your neighbours and call it peace.
We're turning the stock exchange, into something rich and strange,
Instead of playing war games, we make vegan cake.

Chorus.....

Dictator General Villanosa

You are stupid and naïve.
I really can't believe
You try to fool the world with your propaganda.
I'll make the market work,
So scum like you can't shirk
Your fate - to be slaves making money for me.

I have a degree in creating catastrophe.
I intend to use it, just you wait and see.
I'm General Villanosa, I'm getting closer,
To realising my ultimate plan.
World Domination is my ambition.
And then I can take over the rest of Space.
You lot have had it, just you see.
I'm calling the best troops from my private army!

(Brandishing vegan suet making machine)

I'll make you into suet, I know how to do it,
Extremely cost effectively.

(He looks for his army)

Patatistas

(laughing)

You haven't got a chance – we set free
Everybody in the military.
Your soldiers won't come back to you
Now they know
The joys of freedom -
Old man – you've got to go!

(They go off singing)

We think and act collectively
We don't have any hierarchy
We want to set the whole world free from slavery
We don't believe in violence
it doesn't make a bit of sense
We'll get rid of every army.

Globs

Ridiculous – we should nuke the lot of them – Now, about that uranium.

*(Get into huddle with dictator and uranium, but uranium is getting impatient)
(Naturalist and Diamond polisher are left together)*

Naturalist

There's nothing left for us here – let's follow the others, find a different way of doing things.

Diamond Polisher

I'm fed up with serving the wealthy and powerful.

Naturalist

And I don't want to go on doing research that is ignored

(Diamond Polisher and Naturalist leave)

*(The Globs and Dictator emerge shaking hands and smiling etc, with uranium looking furious.
Meanwhile carbon is getting bigger and bigger. Suddenly they stop in horror.)*

Globs and Dictator

(together)

UHH???

(A horde of Raging Bacteria is coming towards them, singing)

Bacteria

You are just a tiny twig on the Tree of Life

We, we are rulers here – we, Bacteria.

All life depends on us – we are unstoppable! ^{xvii}

(They swarm around)

*(Carbon is inflating more and more, **instrumental improvisation**)*

Dictator

Oh no – look - there's water rising all around us!

Glob 1

Oh my god, we're stuck with him now.

Glob 2

And what's this – an oil slick!

(Plankton pass by waving weakly - carbon is overwhelming them)

(Globs and Dictator sing together)

Is there no way out – are we doomed to drown?

*(Epidemics, armies of unemployed, poisonous waste etc rise up as phantoms whilst **carbon instrumental ad lib improvisation**)*

Dictator

Look there – on the horizon – a boat!

All

HELP

(it is the Patatistas in a boat with 50% - or whatever is decided by group ^{xviii} - blazoned on the side)

Patatistas

There's no time to lose – what shall we do?

Dictator and Globs

Save us and we'll help save you too.

Patatistas

What about the Arctic wildlife, the Polar bears?

Dictator and Globs

We'll think of something – just get us out of here.

Patatistas

Why? Why? Why should we save you?
Why should we, why should we save you?

(3 blocks –

Dictator/Remains of Western Civilisation/Globalising Corporations – stuck on an island.

Patatistas/Naturalist/Diamond Polisher in the boat.

Water rising - oil slicks – bacterial plague army etc.

Carbon getting bigger and bigger.

Spirit and earth beings/ancestor spirits/other elements – flying free.)

Final chorus

(They start separately and end up singing together)

Globs and Dictator

You may scoff at globalisation
But we brought you mobile phones
And internet connection
Your whole world depends on industrialisation ^{xix}
For all the problems we've got solutions.
We can plasticate the desert and grow algae in the oceans.
Use carbon offsets, clean coal, carbon sequestration.
At least we'll save **our** bit of the population.

Patatistas etc

We don't believe you, you do it all for profit,
You're making nearly
forty thousand pounds a minute
You'll let poor people starve, so you can run your cars
Turn the planet into a sooty lump of biochar.
We don't trust you or our so-called leaders.
We think you are all ridiculous.

(Dictator is singing at the same time as above)

You are young and foolish
You should listen to us
We can save the world with technology, just you see.

Globs and Dictator

Hydro-electric dams and nuclear energy
Will provide everyone with electricity.
Genetically engineered plants and trees
will give fuel for all our other needs.
We're the ones who have real solutions

Not you with your stupid revolution.

(Spirits sing over above)

Spirits

You can only help yourselves
Remember, remember, where you came from.
Where are you going?

(Carbon comes in on the second remember above and sings alongside)

Carbon

I long to fill every corner.

(singing along with Globs and Spirits and Carbon)

Patatistas

Who says we need endless expansion?
Old-fashioned models of production and consumption?
If we keep to this old pattern
We are heading for destruction.

(singing along with Patatistas and Spirits and Carbon)

Globs and Dictator

We emancipated women with washing machines.
Invented hoovers to keep your houses clean.
Do you want to go back to the bad old days
Or is this just a passing phase?

(singing along with Globs and Patatistas and Carbon)

Spirits

Where, where, where, where do you think you're going?
Where are you going?

(singing along with Globs and Patatistas and Spirits)

Carbon

I'm expanding
I reach everywhere
Ocean, land and air.

Carbon solo

Shall I keep on growing? Rule again, as I did, before the Age of Dinosaurs?
What will they choose?
Which way, which way?

(Open to decide the ending)

i The first, primordial elements in the Universe were hydrogen and helium, which came together to create the first generation of stars. When these stars died, some of them exploded in massive supernovae, blasting out the other elements that went on to produce new galactic matter.- stars and planets, including our own home galaxy, solar system and earth.

ii Some elements are more frequent than others, and some are found more in the crust than in the mantle beneath. The core of the earth is thought to be mainly molten iron, with some gold. All life on earth depends on carbon. Some of the radio-active elements have only been observed/created during experiments with matter in particle accelerators.

iii Gondwanaland, Laurasia and Pangea – names of the early continents. Of these, the shape and geology of Africa has hardly changed from the original Gondwanaland, thus making it truly the world's oldest continent, as well as the birthplace of the first humans.

iv Petra means rock, oleum means oil ie. rock oil. The chant refers to some of the different hydrocarbons that constitute petroleum, plus the main chemical elements, the chief one being of course carbon (83-87%) then hydrogen, nitrogen and sulphur (less than one per cent). Different crude oils have different proportions of hydrocarbons which makes them 'lighter' or 'heavier'.

v Plankton: a general term for aquatic life, including bacteria and jellyfish, that float on ocean currents and use photo-synthesis. It is now widely accepted that petroleum is the end of a long process of transformation of early microscopic plankton. Phyto-plankton include cyanobacteria and diatoms. Zooplankton include archaea and bacteria (single-celled creatures). There is a constant 'snowfall' of these tiny life forms, when they die, to the depths of the oceans. During their decomposition, some of the resulting carbon returns to the atmosphere, but some remains. The oil excavated today probably dates from about three billion years ago. Since then, the remains of those early plankton have been subjected to intense heat and pressure due to geological upheaval, as the original ocean was replaced by rock formations.

Phytoplankton fix carbon by photosynthesis, but are badly affected by pollution and lack of oxygen. Today, warmer air is also making the oceans warmer and the heat, combined with pollution, may cause the plankton to die, thus adding still more carbon to the atmosphere, and taking away food from such creatures as krill, who in turn are the main food supply for higher up the food chain, for example for baleen whales.

vi Henry the Navigator, 1394 -1460, Prince of House of Aziz, Portugal, and Governor of the Order of Christ from 1420. Fascinated by the myth of Prester John, a Christian prince in Ethiopia, and by stories of meadows of gold waiting to be discovered/ plundered. The initiator of the western colonisation of Africa. He financed the early Portuguese explorers who sailed around the coast of Africa. Portugal sought slaves for sugar plantations in Brazil, and gold for currency. Slaves were also of use in Europe, where bubonic plague had killed off half the workforce.

vii Cecil Rhodes was the sixth surviving son of the Rev. Francis William Rhodes, vicar of Bishop's Stortford, and his second wife, Louisa Rhodes. Founder (with huge financial support from Rothschild) of De Beers, named after the farming family who originally owned the site of the Kimberley diamond mining concession – who were not interested in getting money for the diamond they found. Rhodes was both a ruthless capitalist and an ambitious, almost religious, imperialist – he claimed and named the land known as Rhodesia. Believed the British were the 'first race in the world'. On the board of the Maxim Gun company, along with Rothschild. Set up a specially controlled convict station making inmates work in the mines, who could be shot if they tried to escape.

Rhodes also established the system of closed compounds and pass laws, subsequently used as the basis for the apartheid regime in the 20th century. All African workers were forced to register

and then stay in company compounds, basically enslaved by the mining company. Workers were not free to move from one mining area to another. They even had to buy company food from the compound, which brought in extra revenue for De Beers.

Subsequently Ernest Oppenheimer (founder of the Anglo-American Corporation of South Africa) established his own syndicate, then bought out De Beers and maneuvered his way into becoming sole chairman in 1929. He was as ruthless a capitalist as Rhodes, but without Rhodes' mystical aspirations to advance the British empire – he was more interested in accumulating money for himself and his family than running a state.

viii Leopold II of Belgium – the 'King Incorporated' - wanted a slice of the Cake of Africa – and decided to claim his own state, known as the Congo Free State. Belgium was overcrowded and wanted extra land. Leopold actually tried various places before deciding on Africa. He called the Geographic Conference of Brussels in 1876 to try and buy friends in Europe, under the guise of forming a philanthropic organisation - the International African Association. Britain refused to join, but that meant that Leopold could pursue his ambitions in the Congo unimpeded, in particular the rubber trade. Entire communities were terrorised by rubber traders to satisfy an insatiable demand from the west for the new pneumatic tyres.

After Leopold, more European countries joined the Scramble for Africa. It was Africa's misfortune to become the place where the different European power struggles were played out (likened by Niall Ferguson to the 'biggest game of Monopoly in history', with Africa as the board). The original colonisers of Africa – Portugal, France and Britain – were now joined by Belgium, Italy, and Germany.

In 1882 Britain occupied Egypt, after a brief period of power-sharing with France. Not to be outdone, the German Chancellor, Otto von Bismarck, claimed the entire territory from the northern border of the British Cape colony to the southern border of Portuguese Angola, plus Cameroon, Togo, and Tanganyika. He then called the Conference of Berlin between 15th November 1884 and 26th February 1885, using it as an opportunity to play off the different states against each other, especially France and Britain. No Africans were invited, and it was at this conference that the European states gave themselves the charter to haggle over claims to different parts of the African continent. Present were Austro-Hungary, Belgium, Denmark, Britain, Holland, Italy, Norway, Portugal, Russia, Spain, Sweden, Turkey and the United States. This was the real carve-up of Africa – the magnifique gâteau africaine that Leopold had slavered over since the 1870's.

ix 'Whatever happens, we have got the Maxim Gun and they have not' is a quote taken from the couplet by Hilaire Belloc. The lethal Maxim gun was invented by Hiram Maxim in the U.S, but specifically geared to the British market. It could fire five hundred rounds a minute, fifty times faster than the fastest rifle. It was crucial because it enabled Britain to control vast areas of land in Africa, despite having very few troops.

Used with terrible effect during the taking of Matabele land and the battle of Shangani River in Central Africa, a particularly nasty example of Rhodes' double-dealing with African tribes in his remorseless quest for empire. Having bought a concession from the chief of the Matabele tribe to develop gold fields in Matabele land, Rhodes then sent his own army of mercenaries – the Chartered Company's Volunteers (the company being Rhodes' own South Africa Company) to take the land by force. Thousands of Matabele warriors were wiped out with only a few casualties on the British side.

The Thin Red Line referred to the British army in the Crimea, and the phrase was adapted to the Thin White Line to describe the comparatively tiny British presence in Africa and India that none the less managed to control vast territories. It was totally dependent on force. Without fire power the 'Thin White Line' of a few thousand white bureaucrats and soldiers could never have maintained control of an empire that, before its collapse, included about a third of Africa and most of India, and covered about twenty five percent of the world's land surface.

x The first use of petroleum oil was for light, not power. This was the main focus of Standard Oil when it was founded by Rockefeller in 1870. It considerably extended the working day. It was Ford's invention of the model T motor car, in 1908, that marked the start of 20th century dependence on oil for transport.

xi Ken Saro-Wiwa, writer and activist from Ogoniland, in the Niger Delta, founded MOSOP (Movement for the Survival of the Ogoni People) in 1990, issuing the Ogoni Bill of Rights to the international community as an appeal for help in its struggle to stop Shell from destroying its land and natural resources. Oil was first struck in Ogoniland in 1958, and since then the Niger Delta, a fragile ecosystem where people lived largely self-sufficiently by fishing and farming, has been contaminated by oil spills, explosions from burst pipelines, and continuous gas flaring. An area that used to be full of mangrove swamps, alive with plants and animals, has become 'hell on earth'.

After the Bill was made public, the Nigerian government banned all demonstrations, saying they would be considered acts of treason. Despite this, a massive gathering took place in 1993, with more than 300,000 people attending. In 1994, four Ogoni chiefs were brutally murdered. Despite not having been in the area at the time, Ken Saro-Wiwa and nine others were accused of the murders and sentenced to death. They were hanged on 10th November 1995. In his final speech before being put to death, Ken uttered these words – 'We are not the only ones on trial – Shell is here on trial...its day will surely come.'

On May 19th, 2009, Shell agreed a settlement out of court in a case brought by the Centre for Constitutional Rights in New York. The Ogoni people were awarded \$15.5 million, in recognition of their suffering at the hands of the giant corporation. Although this meant that important evidence was not heard in court, the settlement has set a precedent for other communities to claim justice for their treatment by oil companies.

See wiwavshell.org/the-case-against-shell for more information on Shell's abuses of human rights and the legal evidence stacked against them.

xii Uranium is in demand all over the world, as the demand for energy increases. Proponents of nuclear energy say it will contribute less carbon to the atmosphere than fossil-fuel production. Uranium is used to fuel nuclear reactors and its by-product, plutonium can be used to make weapons. Most uranium comes from Canada, Australia, Namibia, Russia, Niger and Kazakhstan. Seventy per cent of areas rich in uranium are inhabited by indigenous peoples who hold the land sacred, eg. Jabiluka and Roxby Downs in Australia, and Havasupai, Grand Canyon, in Arizona, USA. Ten companies mine 87 per cent of the world's uranium, the biggest being Rio Tinto Zinc.

xiii Tantalite-columbite, also known as coltan, produces tantalum and niobium. Tantalum is used for capacitors in electric circuits, mainly mobile phones, computers and DVD players.

The war in the Democratic Republic of Congo has been fueled by illegal trading in coltan, smuggled across the border to Uganda, Burundi, and Rwanda. As with blood diamonds, companies have sought to distance themselves from these conflicts, and claim to source their coltan from conflict-free areas. In 2000, Sony launched its Playstation2, which required increased quantities of coltan. Sony says it has avoided using coltan from the Congo, but it is nearly impossible to trace the supplies of the mineral right back to their origins.

The Congolese Eastern Lowland Gorilla species is also also threatened, by coltan mining destroying its habitat.

xiv 'Age of Loneliness' is a phrase borrowed from E.O. Wilson, naturalist and ecologist. We have now entered the era of the sixth great mass extinction – and this time we humans are the cause, not an errant meteorite. The human population is expected to peak at nine billion by the end of the 21st century. But the global species (ie. non-human species) extinction rate is ten times the global species birth rate. Evolution has produced an incredible number of levels of organisation resulting in billions of species – yet most of this could be wiped out unless human expansion can be curbed.

Population control is still a deeply taboo subject, since it smacks of eugenics and totalitarian control. But if we cannot stop reproducing ourselves, we will be left with an impoverished earth, without many of our animal and plant companions that we take for granted too easily.

xv The diamond trade has been tainted by the use of diamonds in conflict zones, where they have been traded for weapons and lives. The worst wars have been in Africa. In Angola, civil war has raged since 1975 when the Portuguese colonial government abandoned the country. UNITA, backed by the S. African army and air force had control of the main sources of diamonds, while the MPLA (backed by Cuba) dealt in offshore oil. Between 1992 and 1999, about five hundred thousand people were killed in Angola's civil war, while diamond sales reached nearly \$4 billion. Liberia has been identified as a laundry through which rough (uncut) diamonds of dubious origin are shipped to Europe. The NGO Global Witness was instrumental in exposing the diamond trade's involvement in war, in its publication *A Rough Trade* (released in December 1998). Global Witness's campaigning, and the resulting publicity led to the establishment of the Diamond Council in 2000, and the introduction of the Kimberley Process Certification Scheme. De Beers has been anxious to assure the public that its diamonds are conflict-free. It withdrew its operations in Sierra Leone and Liberia and now only deals in diamonds from its own mines. It is part of the Council, and backs the Kimberley process. However, it is still uncertain how effective the Kimberley process is, and recently Global Witness has called for the suspension of Zimbabwe from the Kimberley process because of human rights abuses in its diamond industry.

The world recession has had a severe impact on the diamond trade in India, especially in Surat, Gujarat, where there are numerous small factories. A decrease in purchases of luxury goods in the USA means that fewer diamonds are being bought and many small businesses have gone bankrupt. The situation is so bad in India that some diamond polishers and cutters have committed suicide, and others have been approached to sell their kidneys for money. Some, however, have given up the diamond industry for good, returned to their villages and taken up farming.

xvi Fake Diamonds - De Beers itself has been researching the manufacture of synthetic diamonds for use in industry since the 1950's. Some companies are now manufacturing synthetic diamonds to compete with mined diamonds. These have the added advantage of being conflict-free. A company called Lifegem Inc manufactures diamond jewellery from the ashes of deceased loved ones for mourning relatives, and will even make family pets' ashes into diamonds.

xvii 'All life depends on us – we are unstoppable' – this is not an idle boast. Bacteria are one of the oldest forms of life and they are incredible survivors. Some have a bad reputation with humans – since a few cause unpleasant and sometimes deadly diseases – but we could not survive without the vast majority of them. They recycle dead and decaying matter so that nutrients such as nitrogen and carbon dioxide (for photo-synthesising plants) are available. They are present everywhere in and on the earth, and can live deep under the ocean or at the tops of mountains, in extreme conditions – some can live off sulphur found in deep sea volcanic vents. One cubic centimetre of soil is packed with millions of microbial bacteria.

Bacteria broadly fall into two categories: heterotrophs, who break down complex organic compounds (such as decaying matter) to get their nutrients, and autotrophs, who fix carbon dioxide and other minerals to make their own energy. Without bacteria recycling decomposing matter, carbon dioxide would not be present in sufficient quantity for the photo-synthesising plants to grow.

Cyanobacteria, also known as blue-green algae, produce oxygen by photo-synthesis, and are major stars of the evolutionary story, since their ability to photo-synthesise was probably responsible for the massive build-up of oxygen in the Earth's atmosphere, that enabled life to take a whole new direction and ultimately for oxygen-respiring mammals like ourselves to evolve.

Because bacteria can grow and multiply with enormous speed, and because they can adapt to the most extreme conditions, they will probably survive after all other life is gone.

xviii This could be forty, or eighty, or a hundred – depending on who's talking. The original Kyoto Protocol only set a target for countries to make a 5% reduction against emissions at the 1990 level. However, the IPCC – intergovernmental panel on climate change, is calling for a negative net emission by the end of the 21st century, if anything like life as we know it now is to continue.

To achieve negative emissions will require huge adaptations, cultural, technical, social and political – are we equal to the task? Can we adapt globally to a scenario where each nation aspires to food self-sufficiency – or would reducing exports cause poor countries to be even poorer? Alarmingly, a new Scramble for Africa has already started, as governments from oil-rich countries, such as the Gulf states, with plenty of cash but little land suitable for agriculture, start trying to buy up tracts of land in the Congo, Mozambique, Ethiopia, Sudan and other areas to grow food to supply their own states.

The current per capita consumption of energy in the U.S. is roughly fifty times that of someone living in India. Now the richer countries are hoping to buy their way out of the problem by trading their carbon emissions, giving cash to poorer countries in return for the right to pollute. This will not stop carbon expanding.

According to a DEFRA report updated in February 2009, carbon dioxide is the main man-made contributor to global warming, and the UK contributes about 2% to global man-made emissions – about 38 billion tonnes, of which 85% is carbon dioxide, 8% methane, and about 5% nitrous oxide. Methane is mainly produced by landfill sites (41%) and agriculture (38%). Nitrous oxide is mainly produced by agriculture, in pesticides and soil treatments. While CO₂ emissions from road transport have continued to rise, emissions from energy supply, business and residential fossil fuel use have slightly dropped.

The production of meat for human consumption is extremely energy-intensive, and cow farts form a significant contribution to global methane levels. Long distance transport of food, especially as it requires refrigeration, also raises global emissions. Producing and consuming food locally, adopting mainly vegetarian diets, (except where local indigenous animals, such as rabbits can be occasionally hunted), and farming without chemicals would all help to lower emissions.

xix The globalisers are not being totally disingenuous. The world-wide web and internet use – instrumental in the growth of movements of social change, and for the spread of ideas generally – now make a significant contribution to the world's carbon footprint. Many of us rely on telecommunications to be able to do our work, or keep in contact with families and friends.

But cutting emissions is not just about life-style changes. The biggest carbon footprint of all is made by the military and arms industry, with the U.S. military being the single largest consumer of oil in the world. Currently the extraction of oil from the Canadian tar-sands is vital to the U.S. to keep up its domestic supply, since so much oil is being used in the wars in Iraq and Afghanistan – the Bradley M1 Abrams tank, used in Iraq, does less than one mile to a gallon. The land of indigenous First Nations in Canada, never ceded or surrendered, has been stolen from its rightful owners by the multi-national oil corporations – with Shell being one of the biggest culprits. The Cree and Dene First Nations, who live within the tar sands, now inhabit a polluted environment which is causing health problems including various very rare forms of cancer. What was once rich land covered with forest, where people lived sustainably by hunting and fishing, is being turned into desert, its people deprived of their livelihood and their true home. The process of extraction of oil from the tar sands in itself produces vast quantities of carbon. Every barrel of oil produced this way releases about 188 pounds of CO₂ equivalent into the atmosphere.

All over the world, on every continent, land is being decimated by fossil-fuel extraction, which is producing excessive carbon before the fuel is even consumed. Forests are being logged mercilessly to make way for bio-fuel plantations while less land is available to grow food.

Meanwhile traffic congestion increases as more and more people want to drive. Our romantic love affair with the Combustion Engine has turned into a destructive, addictive relationship

As for hoovers and washing machines....they have helped to cut down the hours of labour

spent on housework. But does each household need its own?

Cultural, not just physical change is a big part of reducing our emissions – many aspects of life that are currently taken for granted are unsustainable in the now not-so-long term.

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