

The Origin by Richard Einhorn: CD Excerpts

On the 200th anniversary of his birth, *The Origin* celebrates the science and life of Charles Darwin. With texts drawn exclusively from Darwin's deeply eloquent writing, the piece centers upon the making of Darwin's masterwork, *The Origin of Species*, surely one of the most important, misunderstood, and extraordinary books ever written.

Charles Darwin

As both a youth and college student, Charles Darwin had “a taste for collecting beetles” and showed little interest in anything else, much to the despair of his father, a successful doctor in Shrewsbury. But one of Charles’ professors must have sensed some talent for science in the young man as he recommended Darwin to Captain Robert Fitzroy as a suitable ship’s companion for a world-spanning “journey of discovery” on H.M.S. Beagle. Quickly assuming the role of ship’s naturalist, Charles Darwin spent nearly five years merrily collecting specimens of animals, plants, and rocks from numerous locations including South America, the Galapagos Islands, Tahiti, and Australia. By the time he returned to England in 1836, the 27-year-old Darwin had, most likely, already become convinced that the prevailing scientific theory for the origin of species – that each species was created separately – must be wrong. Within a year or so, he had worked out the essential aspects of the theory of evolution by natural selection. He spent the next twenty-two years publishing nothing but the vaguest hints of his theory while he gathered exhaustive evidence in its support. Finally, his hand was forced when another scientist, Alfred Russel Wallace, independently arrived at the same theory of evolution he had. Darwin published *On the Origin of Species* in 1859, sparking a revolution in the natural sciences, a revolution still going on today.

During the twenty-two year period Darwin worked on his theory, he married his first cousin, Emma Wedgwood (her father ran the famous pottery concern) and fathered 10 children, 8 of which survived childhood. The death of his much loved daughter Annie at the age of 10 in 1851 devastated Darwin to the point that it subtly affected his science.

The publication of *The Origin of Species* catapulted Charles Darwin to international fame, yet he remained to the end of his life in 1882 a near recluse and an often sickly figure, carefully expanding upon his theory of natural selection and publishing additional works on a vast range of scientific topics. He was an exceedingly whimsical, compassionate, and generous man whose personality shines through all his writings, even the most technical. His reputation is assured as one of the greatest scientists of all time and his theory of evolution by natural selection remains one of the grandest, robust, and accessible of all scientific theories.

The Theory of Natural Selection

The basic concept behind natural selection is simplicity itself. The individuals within any given species, while greatly resembling each other, also vary slightly in their features. There is great competition for survival. Those individuals whose variations permit them to thrive will live to reproduce. However, those individuals with deleterious variations will not have an opportunity to produce offspring. Gradually, over an immense period of time, these small variations will accumulate and a new species will be produced. The older species will either die out or co-exist with the new.

"How extremely stupid not to have thought of that!" Thomas Huxley exclaimed after finishing *The Origin of Species*.

The Origin

In the most general sense, the fundamental "literary" theme of my piece, *The Origin*, is the rapturous and sensuous nature of thought. Some of the texts are autobiographical, such as Darwin's private notes on the profound loss of his ten-year-old daughter. However, it is Darwin's mind that is the main subject, as he develops, struggles with, and enthusiastically describes his theory of the evolution of new species through natural selection, often praised as "the single best idea anyone's ever had." Musically, the work can be thought of as an attempt to explore, in a metaphorical sense, some of the implications of Darwin's theories. To oversimplify, musical themes go through various stages of "evolution" and variation as the piece unfolds, spawning new themes and musical textures, often directly related, but just as often obscurely related, to themes heard earlier. The extraordinary female vocal ensemble, Kitka, is the “Voice of Darwin,” singing excerpts from Darwin’s autobiographical writings (with a cameo appearance from his wife, Emma). Both chorus and soloists perform excerpts from Darwin’s scientific writings, mainly from “The Origin of Species” and from the notebooks he kept.

While informed by Darwin's theories and history, the piece is simply joyous-- often humorously so. Understanding the

natural world was, for Darwin, an opportunity for serious fun. The sheer delight he takes in nature shines through all his writings. The best way, I think, to be true to Darwin's spirit is to embrace that overarching sense of wonder he brings to his thought and try to bring some of that spirit into one's own life and work.

I REPRESENTATION OF CHAOS

Instrumental

II MYSTERY OF MYSTERIES

When on board H.M.S Beagle, as naturalist,
I was much struck with certain facts ...
These facts seemed to me to throw some light
On the origin of species - that mystery of mysteries.

Contemplate an entangled bank,
Clothed with many plants of many kinds,
With birds singing on the bushes,
With various insects flitting about,
And with worms crawling through the damp earth...

These elaborately constructed forms,
So different from each other, and dependent on each other
In so complex a manner
Have all been produced by laws acting around us...

There is grandeur in this view of life
Whilst this planet has gone cycling on
According to the fixed law of gravity,
From so simple a beginning endless forms most beautiful
And most wonderful have been, and are being, evolved.

III A TASTE FOR COLLECTING BEETLES

One day, I saw two rare beetles and seized one in each hand.
Then I saw a third and new kind which I could not bear to lose.

A taste for collecting beetles is
Some indication of future success in life!

So I popped the one I held in my right hand
Into my mouth. Alas!
It ejected some intensely acrid fluid
Which burnt my tongue.

A taste for collecting beetles...

I was forced to spit the beetle out
Which was lost, which was lost,
Which was lost.

A taste for collecting beetles...

I went out collecting
With Albert Way of Trinity
Also with H. Thompson
Member of Parliament.

A taste for collecting beetles...

IV HOW DOES IT COME, WANDERING BIRDS?

How does it come, wandering birds?
Such sandpipers not new at Galapagos.

Did the Creative Force
Know that these species could arrive?
Did it only create those species
Not so likely to wander?
Did it create two species
Closely allied
To *muscipectus coronatus**
But not "coronatus?"

There never were any constant species.

**muscipectus coronatus* - Tyrant Flycatcher, a bird

V THIS IS THE QUESTION

This is the question

Marry?
Children (if it please God)
Constant companion (and friend in old age)
Object to be beloved
Better than a dog anyhow

Not Marry?

No children (no second life)
No one to care for one in old age
What is the use of working
Without sympathy from near and dear friends
Who are near and dear friends to the old except relatives?

Marry?
Home
Charms of music and female chit chat
These things good for one's health.
But terrible loss of Time

Not Marry?
Freedom
Perhaps my wife won't like London
then the sentence is banishment and degradation

Marry Marry Marry ! Q.E.D.

VI A GREAT TREE

The affinities of all the beings of the same class
Have sometimes been represented by a great tree
I believe that this simile largely speaks the truth

Green, green and budding twigs
Growing twigs surrounding twigs
Surrounding twigs budding twigs

A great tree
Great battle
Great branches
Lesser and lesser branches
Ramifying branches
The many twigs

Of the many twigs which flourished
When the tree was a mere bush
Only two or three grown into great branches
Yet survive and bear all the other branches

A great tree...

As buds give rise by growth to fresh buds
And these if vigorous branch out and overtop
On all sides many a feebler branch
So by generation I believe it has been with the great
Tree of Life which fills with its dead fills and
Broken branches the crust of the earth and
Covers the surface with its ever
Branching and beautiful ramifications.

A great tree...

VII ANNIE'S MEMORIAL

My dear Emma
My dear, dearest Emma
I pray God Fanny's note may have prepared you
She went to her final rest most tranquilly, most sweetly.

Our poor child Annie was born on Gower Street
On March 2nd, 1841.
Our poor child Annie expired at Malvern
At midday on the 23rd of April 1851.

For her age, she was very tall, not thin, and strong.
Her hair was a nice brown and long.
Her complexion slightly brown eyes dark grey
Her teeth large and white
Her eyes sparkled brightly her whole mind was pure and transparent
She defied the world in her joyousness.

She had one singular habit...She had a strong pleasure
She would take a strange interest...She would spend hours
A strong pleasure in looking up words
In dictionaries, directories, gazeteers.

She would take a strange interest
Comparing word by word
Two editions of the same book.

She had one singular habit...

Comparing the colours of any objects
With a book of mine in which all colours are arranged and names

Once when she was very young she exclaimed
Oh Mama what should we do if you were to die?

In the last short illness so exhausted she could hardly speak
When I gave her some water she said 'I quite thank you'
These, I believe were the last precious words

Oh that she could now know how deeply how tenderly
we do still and shall ever love her dear joyous face
Blessings on her.

April 30, 1851.

VIII IN MY SPECULATIONS

In my speculations,
In my theory,
What a magnificent view!

There is a force observed.
One thinks there is a law, observed.
Nature does nothing in vain.

That there must have been a
Tendency for feathers to grow there.
That, that the embryo the thousandth
Of inch should produce a Newton.

All this agrees with my view.
Wonderful! Mine is a bold theory.

There is a force, like a hundred thousand wedges.
Such law would explain everything.

Purely hypothesis
Be careful! Imagination in man has strange effect.
Be careful!

IX LETTERS 1858

Mister Wallace, who is now exploring New Guinea,
has sent me an abstract of the same theory
most curiously coincident even in expressions.
I never saw a more striking coincidence

If Wallace had my M.S. sketch written out in 1842,
he could not have made a better short abstract!
Even his terms now stand as Heads of my Chapters
and he could not have heard a word of my views .

So all my originality, whatever it may amount to,
has been smashed!

Do you not think his having sent this sketch ties my hands?
I could send Wallace a copy of my letter to Asa Gray
to show him I had not stolen his doctrine.

My dear Gray,
If by any chance you have my little sketch of my notions of natural selection,
and would see whether it or my letter bears any date
I should be very much obliged.
I would do any thing

My baby died yesterday evening.
It was Scarlet Fever.
I am quite prostrated and can do nothing.

Lyell consulted with Hooker,
who read a dozen years ago, a long sketch of mine written in 1844,
Lyell urged me with much kindness
not to let myself to be quite forestalled
and allow them to publish with Wallance's paper
an abstract of mine.
I believe it has just been read .

I am preparing an abstract of all my conclusions
a small book, a small vol, of 400 or 500 pages.

X DIFFICULTIES ON THEORY II: THE EYE

I have felt the difficulty far too keenly.
My theory would absolutely break down!

If it could be demonstrated any complex organ existed,
which could not possibly have been formed
by numerous, successive, slight modifications,
my theory would absolutely break down.

Can we believe that natural selection could produce organs of
such wonderful structure, as the eye?

I have felt the difficulty far too keenly.
My theory would absolutely break down!

To suppose that the eye, with all its inimitable contrivances
for adjusting the focus to different distances,
for admitting different amounts of light,
and for the correction of spherical and chromatic aberration,
could have been formed by natural selection,
seems, I freely confess, absurd in the highest possible degree.

Yet reason tells me, that if numerous gradations from a perfect and complex eye
to one very imperfect and simple, can be shown to exist;
if further, the eye does vary ever so slightly, and the variations be inherited;
and if any variation or modification in the organ be ever
useful to an animal under changing conditions of life,
then the difficulty of believing that a perfect and complex eye
could be formed by natural selection, can hardly be considered real.

XI FROM EMMA TO CHARLES

When I am dead, know that many times
I have kissed and cried over this.
C. D.

The state of mind that I wish to preserve
with respect to you is to feel that while you are acting conscientiously
trying to learn the truth
you cannot be wrong.

but there are some reasons that force themselves upon me
and prevent my being always able
to give myself this comfort

Oh I cannot say exactly what I wish to say
but I know you will have patience
with your own dear wife.

There is a danger in giving up revelation
That is the fear of ingratitude. in casting off what has been done for your benefit
As well as for that of all the world and which ought to make you still more careful
perhaps even fearful.

May not the habit in scientific pursuits of believing nothing until it is proved,
influence your mind too much in other things which could not be proved in the same way
and which if true are likely to be above our comprehension?

I should be most unhappy if I thought we did not belong to each other forever.

When I am dead,
know that many times
I have kissed and cried over this.
C. D.

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