2016 - Prof Denis Noble - Dance to the Tune of Life Lecture – video
Partial transcript for the part where Prof. Denis Noble reacts to Prof. Jerry Coyne claims (neodarwinism)
Not very accurate text

00:00
what all this data course was to lead me
00:03
to question some of the established 20th
00:08
century theory of evolutionary biology
00:11
and when I first started doing this
00:16
giving lectures all the way from about
00:19
2010 onwards
00:21
slowly developing the theme the response
00:27
from Orthodox new dominus can only be
00:33
described as outrage
00:37
have a look at my Wikipedia page if you
00:41
want examples of that one of those that
00:45
expressed great outrage is Jerry Coyne
00:49
and evolutionary biologist at the
00:51
University of Chicago is the only one I
00:53
will name because he's named himself so
00:56
much so that he appears on my Wikipedia
00:57
page will remind Wikipedia page
00:59
something that somebody has written for
01:01
me and he writes all claims are wrong
01:09
well I could perhaps live with that I
01:12
think all claims they mean all here is
01:14
in poverty are wrong when you think
01:16
about it I mean where they're all
01:17
approximations to the truth
01:19

but that's not what he means a cliff and
01:22
you write however famous Nobel maybe in
01:25
Physiology is a blundering cairo when it
01:27
comes to evolution ecology well let's
01:33
have a look these are some of the quotes
01:37
from the lions roaring here we go again
01:42
somebody arguing the darlings wrong
01:44
those of you listened carefully to this
01:47
lecture so far will realize that I
01:50
actually think the Darwin is not right
01:52
and he was particularly right in not
01:55
excluding the inheritance of acquired
01:57
characteristics and in praising
02:00
jean-baptiste Lamarck as a great
02:03
biologist so I have no idea how on earth
02:06
well I do let me explain why I think
02:09
that
02:11
thinking arises I think it arises
02:15
because neo-darwinism loves to claim
02:19
that it's really just Darwinism writ
02:22
large as it were and with 20th century
02:25
in sites like Mendelian genetics and and
02:28
so on which of course is quite true and
02:30
we nobody would want to deny that the
02:32
incorporation of Mendelian genetics into
02:34
evolutionary biology led to some very
02:37
great advances all the mathematics of
02:40
population genetics would not occur or
02:43

would not have occurred I think with
02:45
without that but there is a kind of
02:49
political strategy here you know Darwin
02:52
is up there as an icon and if you can
02:55
claim as they worthy or children of
02:57
Charles Darwin you're doing very well
02:59
from the point of view of publicizing
03:00
your interview and I think that's the
03:03
explanation but it needs to be
03:06
emphasized very clearly indeed that
03:09
Darwin would not have recognized
03:11
neo-darwinism as his inheritance
03:16
the next one his most moronic claim by
03:19
far is the one on mutations not being
03:22
random
03:22
well anybody's listened to this lecture
03:24
today could hardly go home
03:26
thinking that I claimed that mutations
03:28
are not random actually I do have a
03:32
quibble
03:33
we don't actually as physicists and
03:37
mathematicians fully understand how we
03:40
would ever prove that mutations of
03:44
really random we can say they appear
03:47
random and that's fine enough I think
03:49
and but it's not enough for a very
03:54
simple reason not only do we not
03:56
actually understand fully the mechanisms
04:00

in the physical world that generate
04:03
randomness we understand some of them
04:05
but by no means all and it also that if
04:12
randomness is used you may not see that
04:16
at the level of genes and molecules to
04:20
come back to the gas in a container
04:24
imagine just a moment that gases the
04:27
molecules bounce around in the cell and
04:29
from the viewpoint of a molecule if it
04:32
was represented about this sort of size
04:35
the edge of the cell would be way back
04:38
up in Aberdeen
04:41
the constraint is that very distant edge
04:46
you won't see that in the bouncing
04:48
around of the molecules at a molecular
04:51
level of course once you've got the
04:54
insight there is a boundary there is a
04:56
constraint you can then say ok we now
05:00
understand that this has a particular
05:02
pressure it has a particular volume and
05:05
so on
05:05
but the idea that I claimed that
05:09
mutations are not random well is not
05:12
there I know a lot of single adaptation
05:15
in organisms is based on such
05:16
environmentally induced and non genetic
05:18
change you better read the literature
05:20
even I should comment on that one and I
05:23

finished this particular sequence of the
05:25
lions roaring and hell the travesty and
05:29
DNA is not that taken across straight
05:32
from The Selfish Gene you can only
05:36
maintain that if you have a very strange
05:40
view of DNA and it's replicative ability
05:46
incidentally is the strange view that
05:48
shredding a head and if somebody wants
05:51
me during discussion to go through the
05:53
detail of shredding there I'm very happy
05:56
to do so it's in the new book dolls
05:59
lejeune of life and I think it's the
06:01
first time that the full analysis of
06:03
that error has been published and so
06:07
Cambridge University Press you've gotta
06:09
you've gotta first on that at least on
06:12
that particular issue now the point is
06:15
this the natural error rating copying is
06:19
1 in 10 to the 4 in a genome of 3
06:24
billion base pairs that millions
06:29
what actually happened is one in 10 to
06:32
the 10 hardly a single error in copying
06:36
a whole genome how is that done a whole
06:39
army of proteins constrained by the
06:43
lipids which are not coded for
06:44
incidentally by DNA orchestrates the
06:50
connections so that you end up with the
06:54
extraordinary fidelity of copying the
06:57

ability to be as it were not transient
07:01
is a property of the film there is
07:04
nothing other than a cell that enables
07:06
that to be done I think enough said on
07:10
that one so I'm afraid at the meeting
07:14
last week they met with a stone wall
07:18
then so I finish with my final
07:21
conclusion I'd left just a few minutes
07:23
for discussion
07:25
the conclusion is simply this that
07:29
organisms can and do and demonstrably do
07:34
harmless stochastic stochasticity
07:38
precisely in order to generate
07:40
functionality and that turns the
07:43
neo-darwinism fish on its head the
07:45
central claim remember is random
07:48
mutations accumulate and slowly and then
07:52
natural selection to distinguish between
07:53
the results if on the contrary you can
07:58
harness stochasticity to direct it in
08:00
particular ways just as the immune
08:02
system does just as bacteria do when
08:04
they're starved or deprived of their
08:07
cydia and so on you can end up with the
08:10
evolutionary process being directional
08:13
and that is a huge change we're not
08:16
talking about tinkering with the modern
08:19
synthesis we're not talking about minor
08:21

changes to the near darkness synthesis
08:24
we're talking about a very major change
08:27
conceptually and the implications for
08:29
economics of
08:30
theory for various other disciplines
08:33
philosophy included that have taken over
08:36
and believe me they have the price
08:39
equation and all the various other
08:41
mathematics of evolution or biology are
08:45
absolutely immense those equations are
08:48
going to have to be revised and we can
08:49
have to take account of the fact that
08:51
they can be directionality and that
08:55
Nature has obtained free ride from
08:59
physics as much as chemistry so just a
09:02
bit of further reading the first article
09:05
there which was published in the Journal
09:07
of physiology demonstrates that the
09:12
Selfish Gene theory is of no empirical
09:16
use whatsoever in physiological
09:19
investigation and there has been no
09:22
answer to that article it's been
09:24
published now for five years the second
09:28
is the one that really got the lions
09:30
roaring which was published in again a
09:34
journal of the physiological Society
09:36
experimental physiology physiology is
09:38
rocking the foundations of evolutionary
09:40

biology actually that idea that title
09:44
was taken from the commentary in the
09:46
PNAS article which published Jerry
09:48
Meadows work on the upper back one
09:51
deficiency transmission of epigenetic
09:55
information the commentary article
09:57
simply said that his work was rocking
10:00
the foundations of genetics then a major
10:04
issue of the journal of physiology I
10:07
think I had one just a minute or two ago
10:09
but where I think is downstairs a few
10:11
copies of it which was devoted just two
10:13
years ago to the focused theme that
10:18
evolution evolves and finally the
10:23
article that as it were led to the
10:27
writing of dolls to attune of life which
10:30
has just been published which is in the
10:33
Journal of Experimental Biology
10:34
evolution beyond nude
10:36
organism and I end the lecture with this
10:39
quote that nature is even more wondrous
10:43
than the architects of the modern
10:44
synthesis thought and it involves
10:48
processes previously believed impossible
10:51
physiology is back and is back with a
10:55
vengeance
10:56
thank you very much