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Human development XXI: A theory of top-down macro-evolution and metamorphosis: How the fly got its wings, and how an organism's conscious intent can materialize biological order and body-form

Tyge Dahl Hermansen[1], Søren Ventegodt[*1,2,3,4,5], Isack Kandel[6,7] and Joav Merrick[5,7,8,,9]

[1]Quality of Life Research Center, Classensgade 11C, 1 sal, DK-2100 Copenhagen O, Denmark;
[2]Research Clinic for Holistic Medicine and
[3]Nordic School of Holistic Medicine, Copenhagen, Denmark;
[4]Scandinavian Foundation for Holistic Medicine, Sandvika, Norway;
[5]Interuniversity College, Graz, Austria;
[6] Faculty of Social Sciences, Department of Behavioral Sciences, Ariel University Center of Samaria, Ariel, Israel;
[7]National Institute of Child Health and Human Development,
[8]Office of the Medical Director, Division for Mental Retardation, Ministry of Social Affairs, Jerusalem, Israel and
[9]Kentucky Children's Hospital, University of Kentucky, Lexington, United States

Abstract

Charles Darwin became famous for suggesting the mechanism of natural selection in his book "The origin of species". As DNA and DNA-mutation were discovered everybody could suddenly understand evolution. But remarkable evolutionary "jumps" like how the fly got its wings are still not accounted for, as DNA and biological form are not directly associated in a simple way - if at all. Another puzzling question address the evolution of non-local consciousness: What is the evolutionary advantage of it? We suggest that consciousness gives organisms freedom to change their form independently of the DNA, thus separating microevolution from macroevolution. We suggest that the development of consciousness gave life the dramatic possibility of metamorphosis through intent from a global, organic level. Darwin's evolutionary theory is "bottom up"; our "evolutionary hypothesis of metamorphosis it "top down". The evolution of the fly's wings is traditionally thought to have happened through natural selection. We do not deny natural selection, but suggest a parallel complementary pattern of "metamorphous top down evolution". Such evolutionary events involve decisions at a level of global information of the organism that controls master genes (possibly e.g. homeo-box and E-box genes). The top down evolution allows the species to assume new forms and organs with the same DNA. Top down evolution may be a main factor in the development of the planet's biodiversity. The fly-wing theory is not a substitute for Darwin's theory of natural selection, but a mechanism for speeding up evolution and allowing evolutionary jumps. Therefore, we think the fly-wing theory could be a very powerful tool for evolutionary scientists to explain the mechanisms of evolution in a general perspective, and also to explain individual mechanisms leading to the creation of varieties between individuals.

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[*] **Correspondence:** Søren Ventegodt, MD, MMedSci, MSc, Director, Quality of Life Research Center, Classensgade 11C, 1 sal, DK-2100 Copenhagen O, Denmark. Tel: +45-33-141113; Fax: +45-33-141123; E-mail: ventegodt@livskvalitet.org

materialized intent, consciousness, macroevolution, Denmark.

Introduction

Nature has through time succeeded in developing an almost infinite number of species, but it has been an inexplicable enigma how such diversity could embellish the surface of the earth. However, in 1907 Charles Darwin published his book, "The origin of species", in which he provided an explanation. He thought that diversity is created through a process, "natural selection", where an individual representing a trait most be fit for survival and able to out-compete other individuals not having such advantage. Darwin also operated with a special kind of natural selection he called "sexual selection". He discovered that the "conscious preference" is a main factor for the natural selection (sexual selection) to operate, because in most cases the females through evolution use their "consciousness" to select a mate. Darwin wrote: "if man can in a short time give elegant carriage and beauty to his bantams, according to his standard of beauty, I can see no good reason to doubt that female birds, by selecting, during thousands of generations, the most melodious or beautiful males, according to their standard of beauty, might produce a marked effect". His model has gained supporters all over the world from scientists to ordinary people. Natural selection is to a certain degree capable of explaining the huge diversity of species on the earth. Nevertheless, we believe that Darwin's theory of natural selection cannot explain such diversity by itself. Therefore, we propose a new hypothesis; the "Metamorphous top down" evolution, involving the development of advantageous traits that makes individuals fit for survival out-compete the others, and thereby participate in evolution of diversity. The idea is that these two kinds of evolutionary events interact with each other giving the scientists a very powerful tool to explain the great diversity of species on the planet earth. Most interestingly, metamorphosis is an ancient metaphor for personal development; many old books on human growth and transformation were up through history called "Books of metamorphosis".

The "fly-wing theory", or "theory of metamorphous top-down evolution"

As Charles Darwin described in his book, "The origin of species", he observed how species at the Galapagos Islands, when isolated, developed characteristic traits peculiar for the Galapagos population. On this, he developed his evolutionary "Bottom up" theory where he described the evolution as a function of "natural selection", involving development of diversity through evolution, in a specific order: Varieties → species → genera → families → higher taxa etc (1). On the other hand, our "Top down" hypothesis, proposes that the evolution of diversity may go in the opposite direction: Higher taxa → phyla → classes → order → species etc. The new hypothesis described in this paper is called "The fly-wing theory", because we think the fly illustrates how wings are developed through metamorphosis (2) in a "Top down" model of development, where the phylogenesis mirrors the ontogenesis (see below). Or, when e.g. the taxa is developed through Darwin's evolutionary "natural selection", we think an evolutionary shift happens that initiates a "Top down" evolution through metamorphosis. In this way, the individual organisms within the taxa, through metamorphosis, can differentiate to manifest the peculiarities that fit best to the needs within a specific habitat or microhabitat making up the daily resort of the concerned individual. Such event we call a "Metamorphous Top down" evolution. Through this, the evolutionary events that implement an evolutionary superior "Top down" evolution, as e.g. classes → order → species etc., may manifest the peculiar traits necessary to distinguish a species or varieties within a species. For example, the order Diptera contains gnats, mosquito and fly. These all have wings. Following "The fly-wing theory" these wings are developed from the division Holometabola through metamorphosis: Holometabola – metamorphosis (development of wings) → Diptera [gnats, mosquito and fly]. E.g. in the fly such "Metamorphous Top down" development begins in the caterpillar that through metamorphosis develops to an adult fly with wings (2). The fly is chosen as a model for this hypothesis because the fruit fly is a model organism and thereby is one of the most documented existing species (2). However, this theory

accounts for all organisms and involves the "Metamorphous Top down" evolutionary event.

"The fly-wing theory" does not exclude Darwin's evolutionary "Bottom up" theory, but combines a developmental history where the evolution goes in both directions through evolutionary interaction (see figure 1). We think that the ability of a species to adjust to its specific needs by developing peculiar traits during "Metamorphous Top down" evolution, may have evolved during natural selection. This means that a specific genetic background, developed through natural selection may exist in all organisms. Such genetic qualities are proposed in a new hypothesis, "The Butterfly Theory" (manuscript submitted) forecasting the presumed possibility of existence of such genes in all organisms from bacteria to humans (3-5). Master genes like e.g. the homeobox genes and E-box genes are essential for metamorphosis in the fruit fly *Drosophila melanogaster* and conserved through the animal evolution (3-5). A great amount of homeobox master genes are involved in metamorphosis of plants, sponges, insects and animals (5-7). The homeobox gene family is also involved in human embryogenesis (8). All animals that have been examined including humans have at least one *Hox* gene (a homeobox gene) cluster. These genes show strong homology to the corresponding genes in *Drosophila*. In early developmental stages the Human Embryo is hard to distinguish from other mammalian embryos and it is segmented similar to the larva of a fruit fly (2). Such developmental identity indicates that metamorphous processes like those of a fly also could exist in humans (manuscript submitted). Furthermore, the master regulatory E-box genes controlling the circadian feed back loops, and thereby a master controller of cell proliferation, is identified through evolution from cyanobacteria to humans (5). Such genes are very important for the metamorphous events, and make the possibility of "Metamorphous Top down" evolution very probable. Such documentation supports the existence of the "Metamorphous Top dawn" evolution as an evolutionary event happening in all organisms from bacteria to humans (manuscript submitted).

When the fly develops its wings through metamorphosis (2), or e.g. a butterfly develops its adult form in a pupae or a tadpole develops to a toad, both through metamorphosis (9,10), or an adult human goes through metamorphosis to gain its correct adult traits (manuscript submitted), the evolution following "The fly-wing theory" shifts from a Darwinistic "Bottom up" evolution forced by "natural selection", to a "Metamorphous Top down" evolution directed by an inner drive in an organism to gain its most "desired" traits. Such inner drive may direct the master genes mentioned over and in (manuscript submitted), and other main regulatory genes, to master the "Metamorphous Top down" development. An ontogenetic development like this mirrors the phylogenetic development, because it "reverses" the "natural genetic selection" predicted by Darwin, so the single organism within the frame of its species uses its genetic background to express the most desired form needed by the species, or the most desired form within a micro habitat to make varieties within a species leading to the evolution of new species.

Evolutionary jumps could have happened through evolution of all organisms, even bacteria. Bacteria have very complex behavior and morphology, and why not "global level choices", and even consciousness, in its simplest form. Until now the shift between "natural selection" and "Metamorphous top down" evolution is mentioned as driven by "the most desired traits" and "very primitive and instinctive feelings". A plausible explanation for this is that the need for changes caused by environmental factors triggers a biochemical reaction that initiates the genetic control (we could call this a kind of primitive consciousness). This means that the shift between "natural selection" and "Metamorphous top down" development in reality could be directed as an interaction between the natural selection and the environmental needs continuously arising from the demands of survival in a specific habitat or microhabitat. Such a shift can be illustrated by the following formula: varieties -- natural selection $\rightarrow$ species – natural selection $\rightarrow$ genera – natural selection $\rightarrow$ families – natural selection $\rightarrow$ higher taxa – environmental influence $\rightarrow$ phyla -- environmental influence $\rightarrow$ classes -- environmental influence $\rightarrow$ order -- environmental influence $\rightarrow$ species -- environmental influence $\rightarrow$ varieties. Environmental factors of course, can influence at all stages of development, so the formula can be adjusted to the

conditions at work in a specific situation and also look like e.g.: varieties -- natural selection → species -- environmental influence → varieties. The environmental powers that direct the evolutionary shift can also be explained by a simple formula: environmental influences → (quantum)biochemical reactions (intent, desire and primitive feelings) → genetic control → metamorphosis (see figure 1).

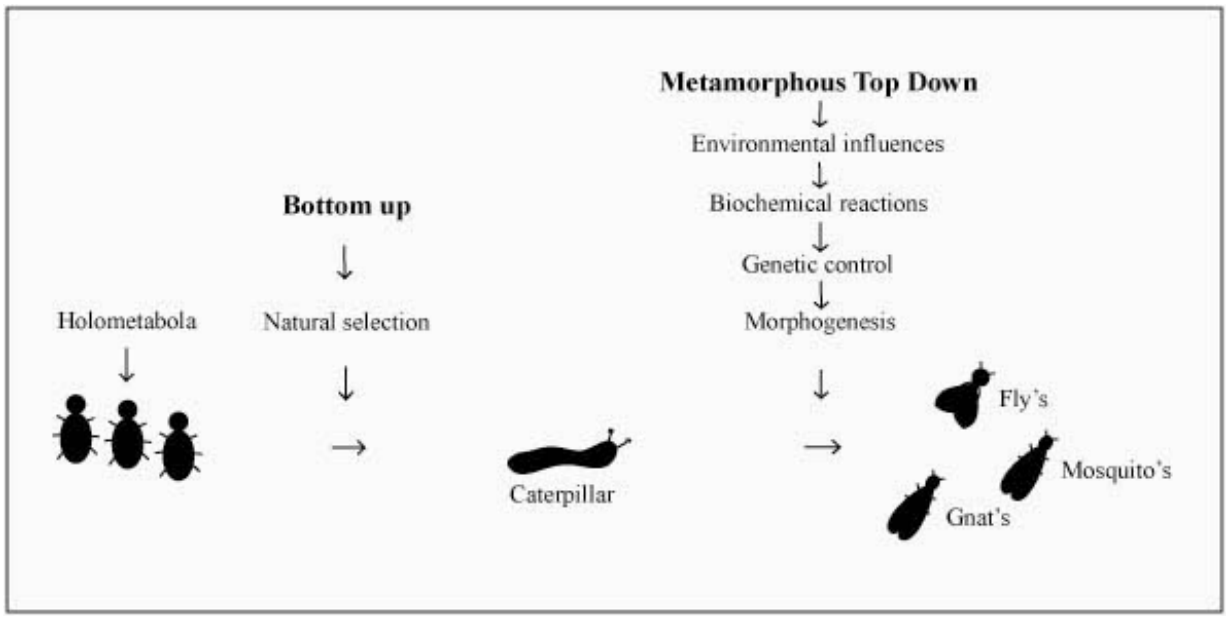

Figure 1. The figure illustrates the interaction between naturally selection and "Metamorphous Top down" development. Through "natural selection" individuals in a taxon, class order etc. (here illustrated by holometabola), can develop varieties in the population. Through "Metamorphous Top down" evolution a varying member of a population can develop its wings.

Discussion

In our long journey of exploring the scientific basis of biology and medicine we have come to analyse evolution. The fundamental problem seems to be what is happening in the living organism on an informational level. We know that proteins have interesting self-organizing features; we also know that a glass of even the smartest molecules will not organize themselves into a living being. The living being has consciousness and global order, and it seems that these are strangely connected. Only by a deeper insight in the nature of consciousness itself can we fully understand biological order, evolution and ontogenesis.

Such functions are really not so difficult to understand, because both "natural selection" and the "Metamorphous "Top down" evolution, in reality, have the same nature. They can be described by the same formula, and thereby the shift only describes a reverse of the same function. This can be understood as: when natural selection rules, the evolution goes from: a single variety → lots of varieties → lots of species → lots of genera → lots of families → lots of taxa, and when metamorphous selection rules, the evolution goes from: a single taxon → lots of phyla → lots of classes → lots of orders → lots of species → lots of varieties. This shows that nature is directed by very simple rules that decide the variegation between all living organisms. This is a hypothesis that we believe may help us understand some of evolutionary phenomena that are hard to explain with natural selection alone. We hope that this will start a dialogue and more research on the subject.

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