

CHARLES DARWIN AND HIS THEORIES

By Leon Croizat (translated by Michael Heads)

ABSTRACT

This is a translation of the conclusion to Croizat's 1977 Spanish paper on Charles Darwin and his theories. The important distinctions between: (1) Darwin as an historical figure in biology and as a logical thinker on biology, and (2) the relative importance of laws of growth and natural selection in the evolutionary process are drawn.

Keywords: Croizat, Darwin, evolution, laws of growth, natural selection.

The article presented below is a translation from the Spanish of the "Conclusions" (pp. 84-88) of Leon Croizat's paper "Carlos Darwin y Sus Teorías" published in *Bol. Acad. Cienc. Fís. Mat. Nat. Caracas* 37 (no. 113):15-90. 1977.

An original, closely literal translation was communicated privately by Croizat and on his suggestion has been turned into better English for publication.

The conclusions stand as a remarkably clear and concise summary of Croizat's analysis of the significance and value of Darwin's evolutionary theories. Despite the fact that all his big books contain chapters of "Conclusions" the charge is sometimes levelled that Croizat never presented his main ideas succinctly. Hopefully this short article will help to destroy this myth, and at the same time encourage the critical thought and discussion characteristic of healthy science.

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Absolutely fundamental is the conclusion that Charles Darwin and his work hold a position of importance in the *history of the advance of ideas*. He has right to this on account of having publicised the concept of evolution in the biological world. Darwin was born and wrote at the right moment to do this quite efficiently.

It is on the other hand a gross, very grave mistake to confuse Darwin as an *historical figure* with Darwin as an *exalted figure of the thinking of biology*. Darwin is a sagacious observer but in no way an acute, logical thinker.

It is a fact that Darwin recognised that there are active in evolution two distinct elements, that is to say: (1) Laws of Growth; (2) Natural Selection; the Laws of Growth being on simple sight independent from Natural Selection. If he had ever been an acute, logical thinker, in sum a genius, Darwin would have tried to structure a theory of evolution under which the Laws in question and Natural Selection would attain—the two together—a degree of harmony in proper relation to their individual importance.

Instead of doing what an authentic genius would undoubtedly have done, Darwin busied himself with theorising headlong in favour of Natural Selection. There can be no doubt in regard to this because Chapter VI of *The Origin of Species* ends as follows: "The law of the Conditions of Existence is the higher law; as it includes, through the inheritance of former variations and adaptations, that of Unity of Type".* Said in other words: The adaptation of the organic being to the external circumstances of the environment (Law of the Conditions of Existence) includes through Natural Selection the sum total of earlier variations and adaptations present in Inheritance (Law of the Unity of Type, that is to say the fundamental concordance of Structure that belongs to organic beings of

* Croizat's original quotation is from a Spanish translation of Darwin 1872.

the same class and is wholly independent from their manner of living (Darwin, loc. cit.). In sum: Natural Selection incessantly accumulates the random variations which are favourable to the organism in its current conditions of existence, thus leading—according to Darwin—to the development of ever higher levels of adaptation and, thus, of evolution also.

It will be obvious that biologists—zoologists, botanists, etc., have rejected the Theory of Evolution of Darwin when informed that, as said by Simpson (1949, 23), tens of millions of species of plants and animals, quite distinct in appearance boil down to relatively few “Basic themes, general types of organisation”.

They have rejected it as notoriously incapable of explaining by Natural Selection (that is to say, through sums of haphazard variations supposedly advantageous to the organic being—better to say, the “species”—under its conditions of existence) the evolution of a fish into an amphibian; of an amphibian into a reptile; of a reptile into a mammal or a bird; of almost 9,000 “species” so markedly different among themselves as, for example, Ostrich, Penguin, Eagle, Sparrow, Goose or Hummingbird, all belonging to the same type of organisation of Birds.

These same zoologists, botanists, biologists, etc., have been willing to accept the theory of Darwin insofar as it is indeed probable that Natural Selection has favoured the differential formation of subspecies of birds, petty rodents, etc., belonging to the same proximal affinity isolated in different peaks or chains of mountains of the Andes, Caucasus, Himalayas, etc. In sum: *The fundamental fault of Darwin's Theory is that it attempts to explain, regardless of cost, by means of Natural Selection that which this Selection explains at the best in a minor part. This fault is all the more serious in that said Theory seeks to impose as essential—whether one likes it or not—criteria of “advantage” of essentially popular type, lacking because of this actual scientific value.*

However, we should not forget—even in the case of our being favourably disposed toward Natural Selection as a genuine factor of evolution—that it is possible to account for examples and cases of evolution in which Natural Selection is actually involved without for this making explicit mention of it. The affirmation that Natural Selection has eliminated during the Tertiary an enormous number of herbivorous mammals of Argentina stands unchallengeable, quite as much as the affirmation that an enormous number of herbivorous mammals of Argentina died out during the Tertiary, mainly because the gradual rising of the Andes changed, on account of desiccation and repeated depositions of alluvium, the lush slopes which once fed masses of herbivorous mammals into sterile stubble. In this case: Natural Selection equals desiccation and repeated depositions of alluvium. In sum: it is accordingly wholly feasible, indeed correct to specify in each case how “natural selection” happened to perform without appealing to it in the Darwinian manner as an agent of transcendental significance. It can thus be demonstrated that Natural Selection enjoys but a measure of relative importance, and it is absolutely not the element orienting the course of evolution as claimed by Darwin and his followers.

There rules today after over a century of essentially futile controversies a tremendous confusion as to what Darwinism is essentially worth, and there is heard from all sides an empty manner of talk which uses words actually void of meaning (for example: *selective pressure, orthoselection*)

that causes disorientation alike to those who teach and to those who are being taught biology, even in the supposedly most advanced universities of the modern world.

This catastrophic state of confusion, has indeed no reason to exist inasmuch as it is by now very clear and beyond dispute that:

(1) The “Theory of the Origin of Species by means of Natural Selection” of Charles Darwin is fundamentally theoretical in the worst meaning of the term, on account of its claiming in support of Natural Selection what does not belong to it. Darwin occupies as an *historical figure* a status to which he has no right as a *thinker*. To stand by what Darwin wrote as a thinker on account of his holding the place of a simple *historical figure* is a gross mistake.

(2) “Anti-Darwinists” and “Darwinists” fall today into three different camps, namely: (i) Those who are firmly opposed to “Darwinism” (e.g. the author of this article), refuse to grant to Natural Selection a place of importance in organic evolution, and are inclined to appreciate development in function of: (a) molecular biology; (b) biogeography (pan-biogeography), throwing out virtually the whole of the Darwinian theorising; (ii) Those who are fundamentally Darwinists in appearance (e.g. Simpson), but constantly contradict themselves by insisting on Natural Selection as the orienting element of evolution, but at the same time accepting the type of organisation, oriented evolution, etc. These biologists, naturalists, etc., mix up the Darwinism to which they cling with the anti-Darwinism explicit in the facts which they accept, and are because of this effectively anti-Darwinists; (iii) Those who as it appears, are complete Darwinists (e.g. Gould), and insist that Natural Selection orients the course of evolution on account of its determining the “type of organisation” which most perfectly corresponds with the surrounding environment and is formed most usefully.¹

(3) In substance, a naturalist is or is not opposed to Darwin and his followers in the very measure that he credits, or not, a high degree of importance to Natural Selection. In this regard Darwin does not deserve being followed simply because he is a poor thinker.

1. What Gould thinks in the last resort is not easily grasped, which is to be anticipated whenever we are faced with the task of clarifying the opinions of a follower of Darwin. Because of this, he who may try to bring into light these opinions runs the risk of being charged with having misunderstood. It is at any rate certain that Gould did write (1976,28): “The essence of Darwinism lies in its claim that natural selection creates the fit. Variation is ubiquitous and random in direction. It supplies the raw material only. Natural selection directs the course of evolutionary change. It preserves favourable variants and builds fitness gradually.” There is much more that could be added, but I am satisfied with what we have already learned. I will remark: (i) it is certainly true that the variation elaborates the stuff on which Natural Selection comes to work; (ii) it is on the other hand radically false that variation but casually proceeds (“is random in direction”). This cannot be because the variation is subjected to “oriented evolution” and “type of organisation” which Simpson accepts without doubt.

It is true (Gould, op. cit. 28) that: “Natural Selection has a place in all anti-Darwinian theories that I (Gould) know”. However, in the anti-Darwinian theories, blessed Natural Selection does certainly not assume the place it does in Darwin's own theorising, etc., etc. It is frankly very difficult to wallop the Darwinists because it is extremely difficult to find the place where to punch. Whatever the case in the end, one meets a mattress of notions mostly contradictory, and never clearer than those of Darwin himself. May they all stew in their own juices!!

The Theory of Geographic Distribution of Darwin is the progenitor of the "zoogeography" of Matthew, Simpson, Mayr, Darlington, Hershkovitz, Haffer, Reig, etc., and of the "biogeography" of Hennig, Muller, etc. All of this is pseudoscience essentially rooted in *centers of origin, migrations, means of transportation* that even Darwin himself proved unable to clarify, and are not worth being taken up seriously. See all my works. (Nelson 1973, provides a partial bibliography).

Finally, today quite as in years past (Croizat 1964:363, 374, 452, 723, etc.) I am firmly convinced that the basic rules of organic evolution through space and time can be summarized as follows:

(I) "NATURAL SELECTION" COMES TO WORK ON WHAT ORTHOGENESIS CONTRIBUTES. This means that Natural Selection is not the creative element of development; it prunes and lops out at best, and lacks the power to generate. Its field of action is restricted as a matter of fact to the subspecies and species. The idea that evolution marches on through the summing up of favourable variation *ad infinitum* is obviously and radically false. Equally false is the opinion that what is "useful", "advantageous" for the individual and the "species" constitutes a fundamental criterion of evolution. No significance whatsoever attaches in science to the claim that what is now "useless" might have been "useful" in the past or "profitable" tomorrow. Mutation, and especially mutations oriented in series (macro-mutations), constitute the fundamental element of development, the agent that effectively creates the type of evolution. This means that the elements *internal* to the being (inheritance, capacity of undergoing change) much exceed in importance the *external* ones (natural selection, adaptation to the environment). As I see it, internal factors rule in 75-80% of development. A hummingbird is a hummingbird before its being—by adaptation—a hummingbird of the coast or of the high alpine open spaces (*páramos*).

Orthogenesis is for me a term that certainly does not contain metaphysical connotations. Orthogenesis is in its essence what Simpson takes for granted as evolution oriented within the limits of the type of organisation.

(II) THE CURRENT GEOGRAPHIC DISTRIBUTION OF AN ORGANISM RESULTS FROM THE VICARIANT FORMATION OF TAXONOMIC GROUPS HAVING PART IN IT, NOT FROM THE BYPRODUCTS OF MIGRATORY "JUMPS" EFFECTED BY THESE SAME GROUPS WHEN PASSING FROM A SUPPOSED "CENTER OF ORIGIN" TO ANOTHER WITH THE HELP OF "MEANS OF DISPERSAL" FREQUENTLY SAID TO BE "MYSTERIOUS", ETC.

It cannot be denied that the boundaries of the geographic distribution of an individual of a group or individuals may alter in relation to climatic changes, etc. What is certainly inadmissible is the disorderly "migration" by sheer chance that is typical of the "zoogeography" and "phytogeography" of Darwinian tradition.

Finally, the theories of Darwin, which never have been well structured, lack significance for the biology of our times. That Darwin ranks as a notable *historical figure* on account of his having been a standard-bearer of the doctrine of evolution certainly does not mean that his ideas on the manner of performing of evolution are correct. If "The Origin of Species" had been published in the Spanish language in Madrid in 1829 instead of in English in London 1859 hardly anyone would have heard of such a book.

REFERENCES

- Croizat, L., 1964 (1962): *Space, Time, Form: The Biological Synthesis*. Published by the Author, Caracas.
 Darwin, C., 1872: *The Origin of Species*. 6th Ed. John Murray, London.
 Gould, S. J., 1976: Darwin's untimely burial. *Natural History* 85(8): 24-30.
 Nelson, G., 1973: Comments on Leon Croizat's biogeography. *Syst. Zool.* 22: 312-320.
 Simpson, G. G., 1949: *The Meaning of Evolution*. Yale University Press, Newhaven and London.