Le darwinisme ou la fin d'un mythe* [Darwinism, or the End of a Myth]
by Rémy Chauvin. Paris: Editions du Rocher, 1997, 368 pp., (c).
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In science, proper names are associated with unexpected ideas or results. Darwin had the genius to propose a unifying hypothesis to explain the extraordinary diversity of living forms. Nevertheless, for most practicing biologists, the name Darwin is of only historical interest, since an experimental science is constantly renewed and redefined by the most recent progress. The last few years have brought exciting and totally unpredicted new evidence concerning the unifying principles of evolution. Who would have imagined that a protein required for cell division in human beings could replace a protein with a similar function in yeast? Even the sacrosanct distinction between vertebrates and invertebrates is fading away, following the discovery of related proteins that give rise to anterior-posterior and dorsal-ventral differentiation in both. All that is required to complete the unification is to imagine that an ancestor of fish inverted and the ventral nervous system of invertebrates gave rise to the dorsal nervous system of vertebrates.

In the light of these remarkable and cogent advances, where can we situate the book by Rémy Chauvin? The title gives a hint; it is not about Darwin or his theory, but about what he calls "Darwinism." Indeed, among the 300 references listed at the end of this amply documented book (but somewhat weak on recent developments — over 85% of the citations are to work prior to 1990) there is not a single reference to Darwin. As a result, Chauvin attacks a fluctuating target that is never adequately defined. Most biologists would freely accept the term "Darwinist" to categorize the general framework of their reasoning, but Chauvin has something else in mind. He is mainly concerned with a few popularizers such as Dawkins, Dennett, and Gould, who have attempted to formulate a synthesis of evolution in a few hundred pages. Their results are a mixture of metaphors and generalizations — attesting more to their authors' rhetorical powers than to their analytical skills — with which it is always possible to quibble.

In short, it is easy to argue that this or that property of an orchid or an eye is too complex to have arisen by gradual steps and then to conclude that the theory of natural selection is flawed, particularly if the alternative is to replace it with some vague notion or yearning for an intelligent organizing principle. Instead of a coherent argument for or against something, Chauvin presents us with a potpourri of jabs in mocking tones against little details or questionable texts. Moreover, since the author's perspective is a mixture of nostalgic descriptive biology with a sprinkling of more recent developments, the reader will hardly obtain a glimpse of the "modern synthesis" that integrates

*Editor's Note: This book has not been translated into English.

Darwin's ideas based on 19th century biology and the current understanding of genomes and genetics.

No modern biologist could imagine that the many thousands of proteins that constitute a human being were individually subjected to positive selection in the final stages of the evolution of our species. Therefore, the concept of "biological clock" that measures the time during which neutral variations have accumulated is not at all a thorn in the side of the theory of evolution, as Chauvin would have us believe (p. 303), but a valuable indicator that provides quantitative information on how many millions of years ago two species diverged from a common ancestor. Moreover, all proteins examined have positions at which no variations in the amino acid have occurred throughout evolution, indicating that a negative selection has been applied at these positions; spontaneous mutations undoubtedly arose, but were fatal or deleterious and were eliminated because of diminished reproductive capacity in those organisms.

Had this issue been clarified, some of Chauvin's other problems with modern data might have been eliminated. For example, he implies that only 5% of the genome is involved in heredity (p. 229), but this results from a confusion with the notion that only 5% of the genome codes for proteins. For chimpanzees and humans, their genomes are more than 95% identical, including the vast majority of the proteins within Chauvin's "5%." Since humans and chimpanzees have undeniable differences, they must be due to subtle alterations in the genome, demonstrating that all portions of the genome can be subjected to evolution.

Chauvin's arguments lack substance, in part because he ignores the concept of bottleneck. What accounts for the size of the gorilla's brain (which Chauvin claims is bigger than necessary, p. 95) is not only the adaptation to its current environment, but the conditions of the "first" gorillas and the competition that prevailed at that point in space and time. Of course, identification of where and when is virtually impossible, particularly since the quantitative description of evolution leads to the conclusion that the most critical stages will invariably be the least abundant. Hence, these forms will always be those that are among the most poorly represented in the geological record because their formation is rare, and once present, they disappear during subsequent steps in the evolutionary process that follows a new pathway. The most important links therefore are invariably missing. This fact may displease some authors, but why reject a theory that constitutes a satisfactory working hypothesis when no better hypothesis can be provided?

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