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Luis Benítez Bribiesca

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MEMETICS: A DANGEROUS IDEA

LUIS BENÍTEZ-BRIBIESCA

SUMMARY

In his bestseller book "The selfish gene" Richard Dawkins has defined DNA as a universal replicator molecule that constitutes the basic structure for evolution and natural selection of living creatures. When trying to explain cultural evolution he proposed the existence of a unit of cultural transmission for which he coined the very appealing neologism of "meme" calling it the second replicator. Memes, as genes, are copied. They mutate and are selected. This idea has undergone the sorcerer's apprentice path spreading rapidly amongst many evolutionary scientists developing into a strange "science of memetics". But while genes are well defined and their molecular structure has

been extensively investigated, memes are ethereal and cannot be defined. Without an adequate idea of these elusive elements it is no surprise that no scientific demonstration of such an immaterial replicator exists and serious scientists disregard memes as the basis to explain consciousness and cultural evolution.

Memetics is nothing more than a pseudoscientific dogma where memes are compared to genes, viruses, parasites, or infectious agents thriving for their own survival in human brains. Memetics is a dangerous idea that poses a threat to the serious study of consciousness and cultural evolution.

The concept of a self-replicating molecule as the origin of life seems to be widely accepted. Richard Dawkins in his bestseller book "The Selfish Gene" elaborates extensively on the role played by the universal replicator molecule DNA as the basic structure of the gene to explain evolution and natural selection of living creatures. But when he tries to explain cultural evolution on the same

grounds, he was faced with the necessity of finding the equivalent of a replicator gene in the human mind. He thus proposed the existence of an immaterial replicator, "a unit of cultural transmission", a "unit of imitation" for which he coined the very appealing neologism "meme" (Dawkins, 1989). His invention was indeed a very catchy one and provided an ideal element, conceptually identical

to the gene, that could help explain cultural evolution by natural selection. Memes, as genes -according to Dawkins- are copied, they mutate and are selected. The analogy is so simple and attractive that a full-blown theory of cultural evolution based on memes has emerged from various authors. The best examples are Daniel Dennet's pair of books, "Consciousness Explained" and "Darwin's Dan-

gerous Idea", and recently Susan Blackmore's book "The Meme Machine" (Jeffreys, 2000; Aunger, 1999). The metaphoric idea of memes has undergone the sorcerer's apprentice path and thus has spread so rapidly that even Scientific American in the October issue of 1999 dared to publish an extensive article by Susan Blackmore entitled "The Power of Memes" (Blackmore, 2000). The issue

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Luis Benítez-Bribiesca. M.D.
Editor in Chief, Archives of
Medical Research. Address:

Centro Médico Nacional S-
XXI, Av. Cuauhtemoc 330
Bloque B de la Unidad de

Congresos, 4°. Piso, 06720
México, D.F. México.
e-mail: luisbenbri@mexis.com

RESUMEN

En su popular libro "The Selfish gene", Richard Dawkins definió al ADN como la molécula replicadora universal que constituye la estructura básica de la evolución y selección natural de las criaturas vivas. Pero cuando él trata de explicar la evolución cultural tiene que proponer la existencia de una unidad de transmisión cultural para la cual ideó el neologismo exitoso de "meme", al que llama también el segundo replicador. Los memes, como los genes, se copian, mutan y son seleccionados. Esta idea ha tenido el destino del aprendiz de brujo, ya que se ha diseminado rápidamente entre muchos científicos evolucionistas produciendo una extraña "ciencia memética". Pero mientras los genes son entidades bien definidas cuya es-

tructura molecular ha sido investigada extensamente, los memes parecen ser etéreos e imposibles de definir. Sin contar con una idea clara acerca de estos elementos elusivos no debe sorprendernos que no exista ninguna demostración científica de la existencia de estos replicadores inmateriales y por ello los científicos serios ignoran a los memes como elementos para explicar la conciencia y la evolución cultural. La memética no es más que un dogma pseudocientífico donde los memes se comparan a genes, virus, parásitos o agentes infecciosos que buscan tenazmente sobrevivir en los cerebros humanos. La memética constituye una peligrosa idea que representa una amenaza para el estudio serio de la conciencia y de la evolución cultural.

RESUMO

No seu popular livro "The Selfish gene", Richard Dawkins definiu ao ADN como a molécula reprodutora universal que constitui a estrutura básica da evolução e seleção natural das criaturas vivas. Mas quando ele trata de explicar a evolução cultural tem que propor a existência de uma unidade de transmissão cultural a qual deu origem ao neologismo com sucesso de "meme", ao que chama também o segundo reprodutor. Os memes, como os genes, são copiados, se transformados e selecionados. Esta idéia sido tido o destino do aprendiz de brujo, já que se há disseminado rapidamente entre muitos cientistas evolucionistas produzindo uma estranha "ciência memética". Mas enquanto os genes são entidades bem definidas cuja estru-

ra molecular tem sido pesquisada extensamente, os memes parecem ser etéreos e impossíveis de definir. Sem contar com uma idéia clara sobre estes elementos elusivos não deve nos surpreender que não exista nenhuma demonstração científica da existência destes reprodutores imateriais e por isso os cientistas sérios ignoram aos memes como elementos para explicar a consciência e a evolução cultural. A memética não é mais que um dogma pseudocientífico onde os memes são comparados a genes, vírus, parasitas ou agentes infecciosos que buscam tenazmente sobreviver nos cérebros humanos. A memética constitui uma perigosa idéia que representa uma ameaça para o estudo sério da consciência e da evolução cultural.

is so controversial and so highly criticized that three short counterpoints written by prominent scientists in the fields of anthropology, psychology, and ecology and population biology were added, of necessity.

Surprisingly enough, and although many ardent believers of this idea already speak of a "Science of Memetics", there has been as yet no scientific demonstration of such an immaterial replicator. To start with, there is no clear-cut definition of a meme. No one really knows what this "unit of cultural transmission" really is; this is why the list of memes appears to grow indefinitely and arbitrarily, although there is no way of outlining the basic composition of this entity (Jeffreys, 2000). In the table from Blackmore's article, memes and complex memes categories vary from stories, urban legends and myths to hairstyles and body piercing (Blackmore, 2000). The su-

perificial analogy with genes cannot be more farfetched. While genes are stored in a universal molecule containing coded information amenable to objective scientific scrutiny, memes, if they exist at all, are a set of greatly heterogeneous imaginary entities that cannot in any way be subjected to rigorous investigation and experimentation. Even more, without an adequate idea of what to look for, no concerted effort to discover the whereabouts of memes has been or could be mounted, asserts Robert Aunger (1999). It follows that the existence of a cultural replicator could not be scientifically demonstrated if its essential niche and nature are so elusive.

Furthermore, the mechanism proposed for the copying and mutation of memes, as the basis of cultural evolution that memeticists contend is similar to genes, has serious drawbacks. For evolution and selection to take place,

genetic information has to be stored in a relatively stable molecule such as DNA in what Schrödinger referred as a "code-script". Without this structure, a mutation, which is nothing else but a change of code, could not take place and in the absence of a precise copying mechanism mutations cannot be selected. Information in genes is encoded in digital form with four letters, but in memes messages are encoded in continuously varying analogous symbols that might rapidly decay into noise as they are transmitted from individual to individual (Smith and Szathmari, 1995). Genes require that messages be replicated with a high degree of accuracy, something that does not and cannot occur with memes. The mutation rate must be low to guarantee stability and to allow for selective pressures to act over long periods of time. If the mutation rate is high and takes place over short periods, as memetics predict, instead

of selection, adaptation, and survival a chaotic disintegration occurs due to the accumulation of errors. Selection due to heritable variations requires a repeated phenotype upon which to operate (Kaufman, 1995). Proponents of the "memetic hypothesis" point out that memes mutate continuously from "brain to brain" and in a very short time. How could this high mutation rate, lack of a code script, and memetic instability account for the emergence and progressive evolution of the human mind and culture?

The idea that cultural evolution is subjected to some kind of Darwinian selection is not new and certainly does not require the existence of a replicator unit. In fact, Karl Popper (1994) has stated that the mechanism of adaptation is fundamentally the same for genes, behavior, or scientific discovery -considered by Blackmore (2000) as a set of complex memes- and that all are subjected to natural selec-

tion through selective pressures. He nevertheless analyzes differences among the three levels. At the genetic level, mutations are not only random but completely blind; on the behavioral level different trials, instead of gene mutations, are no longer completely blind but goal-directed and at the scientific level (or cultural level) language, both spoken and written, allows criticism to be the selector mechanism that leads to the final path of cultural evolution, which is creative thought.

Memetics is nothing more than a pseudoscientific dogma encased in itself. It is something akin to psychoanalysis with its wonderful intellectual construction but devoid of any objective proof. Memetics is approaching the dangerous category of a fashionable idea that follows the path of the memorable book by Teilhard

De Chardin "The Phenomenon of Man" (1961). By the turn of the 20th century when the book was written, De Chardin explained noogenesis and the emergence of the noosphere on evolutionary grounds, catching the attention of bright intellectuals such as Julian Huxley. At that time, anthropology offered him the scientific basis to elaborate his idea that is, no doubt, bright and illuminating but too metaphysical and impossible to be tested. The devastating criticism of this work set forth by Peter Medawar (1996) clearly settled the unscientific nature of this theory.

The "science of memetics" is farther away from Chardin's theory of noogenesis and does not even embrace the respectable metaphysical concept of this author. Memetics seems more like a disparate cocktail of concepts where memes are

compared to genes, viruses, parasites, or infectious agents thriving for their own survival in human brains. Memetics seems more a children's fable or a virtual game, where memes are obnoxious, autonomous strange entities floating all over trying to control our minds. Despite the efforts of some bright intellectuals to provide this fashionable metaphoric dogma with any scientific basis (Jeffreys, 2000; Auger, 1999), memetics continues to be a pseudoscientific theory that poses more confusions than solutions for the study of consciousness and the evolution of culture.

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