BOOK REVIEW

Robert Richards: *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe*

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The Romantic Conception of Life is an impressive book and displays Robert Richards' tremendous erudition and scholarship. In this book Richards traces the origins and the development of the Romantic Movement in the late eighteenth and early nineteenth centuries, and helps the reader to reinterpret it as a movement that influenced the development of science and especially the development of biology. Richards' style is transcendentally refreshing and is characterized by readability, even when he deals with metaphysical notions, and despite the wealth of notes from original sources that he extensively draws upon throughout the book.

Richards, in his attempt to provide the reader with a 'thick description' of the Romantic Movement, follows both the personal and the intellectual lives of the individuals, who called themselves "Romantics", such as the Schlegel brothers (especially Friedrich), Schiller, Novalis, Schelling, Schleiermacher, and Goethe. In fact, Richards contends that only by examining *"the development of their intellectual and passional lives—the ways in which individual experience electrified their cognitive connections—can one understand the multifaceted meaning of the Romantic"* (p. 23). As Richards discusses the details of their personal lives, one thing becomes very evident: it was the intellectual and personal interactions that gave birth to, and shaped, the Romantic ideas. For example, Goethe was inspired and influenced by Schiller, while Schelling both inspired and was inspired by Goethe. Humboldt also inspired and influenced Darwin.

Richards quite often makes reference to the role that friendships—the "magical circle of friends"—and love affairs amongst the Romantics played in the Romantic Movement. In actual fact, Richards, in attempting to describe the Romantic personality, writes that "*it is Goethe in Rome lying with his arms about his sleeping mistress and composing a poem, while counting out its measures softly on the vertebrae of her back*" (p. 14).

Notwithstanding the importance that Richards attaches to the erotic lives of the romantics, his analysis does show, contrary to what was commonly and until recently believed, that what really characterized those individuals was their attempt to understand nature through philosophy, poetry, and science. Thus Richards makes a strong case for the

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importance those individuals attached to reason, dispelling, at the same time, the belief that Romanticism was simply linked to some kind of "emotional mysticism". Friedrich Schlegel's view that "All art should become science and all science art; poetry and philosophy should be made one"—an epigram in the book -, best captures the message that Richards intends to convey to his readers.

The Romantic Conception of Life consists of four parts, the first two focusing on the early Romantic movement in literature, philosophy, and science, and on the scientific foundation of what Richards calls the "Romantic mode of being and thought", while the other two specifically on Goethe's life and work, and on Darwin's biology, respectively. With the exception of the fourth part—the shortest in the book, as it consists of a small introductory chapter and the main chapter, which is dedicated to Darwin's biology and its romantic roots—the first three parts are dedicated to the literary and philosophical background of the Romantic Movement. In tracing, as he does, this literary and philosophical background, Richards helps the reader grasp both the complexity and the diversity of the Romantic Movement, and the ideas behind such movement.

Richards' review of German idealism (e.g., Kant's three *Critiques*, Fichte's metaphysics, Schelling's transcendental idealism) in particular, provides the reader with a solid background of the philosophical foundation of the Romantic Movement. This background is necessary for an understanding of four fundamental "romantic" ideas, namely, the centrality of subjectivity—we should not forget that, as a reaction to the 'objective' scientific treatment of nature, the Romantics did place emphasis on the self -, the centrality of the imagination and creativity, the complementarity of the poetic/aesthetic and scientific conception of nature, and the idea that nature and the self reflect each other.

Indeed such romantic ideas as that all natural entities are "purposive without a purpose" and that these entities represent "the unconscious manifestation of the self's striving to know itself" (p. 162) become easily understood in the light of the metaphysical position of monism, which grounded the philosophy of the Romantic Movement and of the Romantic Science in particular.

The aesthetic grounding of nature, as well as the aesthetic and moral aspects of Romantic Science, which were absent from natural philosophy (*Naturphilosophie*), are discussed in various chapters of the book, thus helping the reader to better understand the romantic conception of nature. This conception was "organic" and reflected the self—nature was viewed as "the mind's double"—and was imbued with both aesthetic and moral elements. As such, such conception went contrary to the mechanistic/Newtonian conception prevalent in England and Western Europe at the end of the eighteenth century. It was also hostile to the British mind of the eighteenth century, given that British natural philosophers believed that a Creator was responsible for nature's creations. It was this organic conception of nature, was a revolutionary. Darwin, as Richards points out, "rooted archetypal structures back in nature" (p. 10) and his conception of nature "exemplified archetypal patterns beneath the wild frenzy of their variations", which "gradually changed not under the aegis of Paley's God" but "through the power of a creative nature" (p. 553).

It is worth noting that Richards does not simply demonstrate a grasp of the philosophical background of the Romantic Movement. His writing style is such that it helps the reader understand not only the fundamental ideas of idealism, but also the problems that led Fichte and Schelling to reject Kant's "thing-in-itself" and defend monism as their meta-physical position, and Spinoza's influence—his idea that God and Nature are one—on the adoption of monism. Thus Richards helps introduce the reader into post-Kantian

philosophy, which was the foundation for Goethe's morphology and Schelling's natural philosophy (*Naturphilosophie*), both of which are discussed in detail in the respective chapters.

It is also worth stressing that Richards' description and interpretation of the Romantic Movement reinstates the notion of "romantic science", especially the science developed and practiced by Goethe, and restores the status of the Romantics as individuals who attached great importance to reason, and sought unity in both nature and their thinking. The value, therefore, of Richards' book is that it prepares the reader to revise her/his view of the impact of the Romantic Movement, at least on the science of biology, even though a reassessment of Goethe's work in physical science by Helmholtz, as Richards writes, points in the same direction. From such perspective, Richards' book complements his own earlier works on Darwin (e.g., *Darwin and the Emergence of Evolutionary Theories of Mind and Behavior*, 1987; *The Meaning of Evolution*, 1992) and especially earlier works on "Romanticism" and "Romantic science" by other scholars (e.g., Abrams' Natural Supernaturalism, 1971; Cunningham & Jardine's Romanticism and the Sciences, 1990; Bortoft's *The Wholeness of Nature*, 1996), all of which convey the same message, namely, the influence of the Romantic Movement on science in general.

But what is the relevance of Richard's *The Romantic Conception of Life* to science education today? In my view there are three interrelated "romantic" ideas that deserve particular attention, and which we need to reclaim.

First is the idea of the complementarity of the aesthetic and scientific conceptions of nature. Art, therefore, can be seen as a complementary way to the study of natural phenomena. Helmholtz's view, that artistic representation can provide another avenue into the complexities of nature, is an idea that can be more seriously considered by mainstream science education, even though art and science connections have been considered by some science educators.

Second, is the importance of aesthetic perception in the study of natural phenomena. Starting from the richness of the natural phenomena (rather than from hands-on activities and modeling) and thus allowing students to appreciate the beauty, the mystery and the wonder evoked by such phenomena, is more likely to help science educators move away from "ontological reversal" (that is, the process whereby mathematical symbols and models acquire a higher ontological status than the actual natural phenomenon).

Third is the idea of the relationship of human beings and nature, and more specifically the emotional sensitivity toward nature. Even though the romantic idea of the unity of human beings and nature is not encouraged today by mainstream science education, raising the students' awareness that they are part of the natural world—that they are part of the issues and problems that they are asked to approach (in the STS and more recently STSE contexts)—appears to be a good strategy that can help foster an emotional sensitivity toward nature. And it is this awareness and sensitivity that are more likely to help students develop respect for nature.

And fourth, is the possibility for a multi-disciplinary approach to the study of natural phenomena (e.g., a sunset can be approached both from the perspective of literature and from that of science). This is not only a good way to avoid "scientism" but also a good strategy that can help students view science as one of the various ways to experience and understand the natural world.

Perhaps the 'educational moral' of Robert Richards' book is the importance of imaginative/creative thinking in approaching nature, which can indeed help students approach school science as a creative endeavour, an idea that is in line with the nature of science itself.