The 5th. Biennial Conference of

Comparative Literature

Literature and Science

Tehran

1387

University of Tehran

University of Tehran Press
Http://press.ut.ac.ir

Faculty of foreign languages and literature
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Victorian Literature and Science: A Mutual Inter-dependence or Confrontation

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Two prominent factors in the life and literature of the Victorian era are: the steady advance of democratic ideas, and the progress of scientific thought. Both of these profoundly affected literature of the Seventeenth century. Science influenced literature of the Victorian era in different ways. It fostered a spirit of restlessness by increasing man's material resources and actually commercialized contemporary life.

This article is divided into three parts. The first part is an "Introduction" about science and literature of the Victorian era. It will talk about the advance of science in the century that revolutionized the physical and social environment, and deeply affected men and literature. The second part, called "Discussion," covers the most important issues related to science and literature of the Victorian era, including: (a) Evolutionary theories and their impact. (b) Commercialization of contemporary life. (c) Conflict between science and religion. (d) Heredity and environment, science and Victorian view of nature. The last part of the article called "Conclusion," will conclude the findings of the study.

Keywords: Literature, science, religion, Victorian era, nature, evolutionary theory.

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Introduction

The age of reason or the enlightenment age, began in Europe with the rationalist philosophers and scientists of the seventeenth century. Rationalism is the belief that we can arrive at truth by using our reason rather than by relying on the authority of the past, on religious faith, or on intuition.

The emergence of modern science and the scientific method had much to do with new emphasis on reason and free inquiry. Different discoveries made by physical scientists and mathematicians were changing the ways people viewed the universe. Scientific investigation seemed to show that

the universe was organized according to certain unchanging laws and that people could discover those laws through the use of their reason.

The theoretical background for an Age of Reason, took shape in Europe in the work of such figures as Descartes, Newton and John Locke. Reason was actually God's special gift to humanity – the ability to live in an ordered, logical manner. As the French philosopher and mathematician Rene Descartes affirmed in the opening sentence of his *Discourse on Method* (1637): "I think therefore I am." This gift of reason enabled people to discover both scientific and spiritual truth. In the rationalist view, all human beings were born with an innate ethical sense and all had the ability to regulate and improve their own lives.

Two prominent factors in the life and literature of the Victorian era are (i) the steady advance of democratic ideas and (ii) the progress of scientific thought. Both of these movements profoundly affected the literature of the period, both directly and indirectly.

Discussion

(A) Evolutionary theories and their impact:

The Victorian era was an important time for the development of science. The theories of evolution shook many of the ideas the Victorians had about themselves and their place in the world. Although it took a long time to be widely accepted; it dramatically changed subsequent thought and literature of the Victorian Era. Charles Darwin's work *On the Origin of Species* affected society and thought in the Victoria era.

The advance of science revolutionized the physical and social environment, and profoundly affected the outlook and temper of men as

well as the intellectual activity during the period. The evolutionary theories of Darwin, Herbert Spencer and Wallace completely revolutionized the contemporary views about man and society. Faith in the Biblical view of cosmology and creation was shaken and was replaced by the Darwinian theory of evolution through struggle for existence. The result was a weakening of religious faith.

(B) Commercialization of contemporary life:

According to Compton-Ricket, Science influenced the literature of the Victorian era in different ways. In the first place, it fostered a spirit of restlessness by increasing man's material resources, and in the second, it commercialized contemporary life. Wordsworth lamented these tendencies at the very outset when he cried out:

The world is too much with us, late and soon,

Getting and spending, we lay waste our powers.

While Ruskin at a later date flung out his sarcastic dictum that the compelling desire of the day was: "Wherever we are, to go somewhere else; whatever we have, to get something more."

Ruskin and other reformers like him thundered against the increasing ugliness and murkiness consequent upon the technological revolution and industrialization. The city slum, the urban murk and roar, are the common targets of attack of the Victorian writers. But both Wordsworth and Ruskin looked too exclusively upon what was incidental to, rather than essential in, the scientific movement. Compton and Ricket write:

> "Every fresh accession of human knowledge has a destructive as well as a constructive side. The new tributary, surging up into the main stream obliterates

> the old landmarks and agitates the placid waters; the immediate effect is disturbing, but after a while fresh landmarks emerge, the river resumes its normal rate, and its vivifying and dynamic power is greatly augmented. The effects of geological and biological discoveries shook to its depth the old cosmogony; and the general spiritual unrest is reflected most remarkably in mid- Victorian poetry."

They then add:

> "The questioning note in Clough, the pessimism of James Thompson, the wistful melancholy of Mathew Arnold and the fatalism of Fitzgerald, all testify to the skeptical tendencies evoked by scientific research. It did not kill poetry, but it stifled for a while the lyric impulse and over-weighted verse with speculative thought."

(C) Conflict between science and religion:

At the beginning of the nineteenth century, religious faith and the sciences were generally seen to be in beautiful accordance. The study of God's Word in the Bible, and His Works in nature, were assumed to be twin facets of the same truth. One version of this belief had been manifested in William Paley's *Natural Theology* (1802), which repeated the argument that natural objects show evidences of design, thus showing the existence of a designing God. Paley's work was enormously influential for its emphasis on nature as God's creation, even though, by the1830s, few Christians saw a need to prove God's existence, preferring to take this as an act of faith. The *Bridgewater Treatises* (1833-36) showed how natural theology could be reconfigured in various ways to

meet new discoveries. Their sales figures also showed that there was a substantial market for non-technical works of science.

By the middle of the century, there were increasingly two different arenas in which science and religion might be expected to interact: one was the preserve of the expert men of science; the other was society at large, whose members were benefiting from the increasing numbers of popular science publications appearing on the market. These two arenas did overlap, but it is worth considering them separately.

In the expert arena, would-be professionalisers such as Thomas H Huxley and John Tyndall, were beginning to make their marks. Although neither of these men were opposed to faith per se, both were opposed to the authoritarianism of organised Christian religion. Both objected to the involvement of clergymen in the sciences, and argued that science should be carried out by specialist experts - clergymen should focus on being experts in their own, separate, fields of theology and pastoral care. The rhetoric of this group of professionalisers, and their growing prominence within the sciences meant that by the 1870s and 1880s, 'the sciences' and 'religion' were increasingly seen as utterly separate and distinct.

This view was exacerbated by the publication (originally in America) of two books claiming to show how theology and/or religion had repeatedly constricted the sciences throughout history: John Draper's *History of the Conflict between Religion and Science* (1875) and Andrew White's *The Warfare of Science with Theology in Christendom* (1876, expanded as *The History of the Warfare…* in 1896). Although the myth of the conflict of science and religion was by now well established, and few clergy attempted to maintain a reputation as scientific experts, it should be noted that plenty of individuals continued to have a Christian faith and to

participate in the sciences. James Clerk Maxwell is one of the most obvious examples.

Meanwhile, in the popular arena, there was far more variety in the relationship between science and religion. Although some writers and publishers did present the sciences in a secular manner, as Huxley and Tyndall would have liked, they did not have a monopoly. Publishers with explicit religious credentials continued to publish popular works on the sciences right up till the end of the century, and their works competed in the marketplace with the secular versions. Although much has been made of a mid-Victorian crisis of faith, perhaps triggered by the sciences, this seems to have been a feature of a certain class of intellectuals, and not an accurate description of the majority of society (especially middle-class society), which retained a religious faith long after most expert men of science.

If scientific discoveries intruded themselves too insistently upon the poetical imagination, they exerted an influence upon poets, like Tennyson and Browning, that, if occasionally inimical to art, on the whole, evoked very markedly some of the most remarkable qualities in these great Victorians. *In Memoriam* and *Christmas Eve* and *Easter Day*, Published about the same time, are something much more than expressions of the troubled thought of the time. They give us, the one in a setting of exquisite and delicate workmanship, the other with dramatic vigor and imaginative insight, a point of view of eternal freshness and interest. Tennyson expresses this skepticism when he makes a forceful plea for a compromise between science and religion. “Let knowledge grow from more to more,” he says, and thus he welcomes the scientific advancement of the age. But he also wishes that more of faith should dwell in the

human heart as in the past, so that, together, science and knowledge may make one music and contribute to the happiness and well being of man.

Tennyson and evolutionary Theories:

The rise of science resulted in religious skepticism, doubts and anxieties and Tennyson is a typical Victorian in his efforts to reach a compromise between science and religion. As noted above, he would have science, but he would also have religion and he would have the two works in harmony for the realization of the Victorian dream of progress unlimited. In some poems and stanzas of *In Memoriam,* he puts forward the claims of science. He upholds the theory of Evolution propounded by Darwin, and supports the view that honest doubt is better than blind faith:

There remains more faith in honest doubt

Believe me, than in half the creeds.

In others, he emphasizes the claims of religion, God and soul. He triumphantly declares his faith in God and the immortality of the soul and in a life beyond death. He advises the people of his age to cling to faith beyond all forms of faith, to trust and hope, to look to

One far-off divine event

To which the whole creation moves.

In every object of nature and also in the sun, the moon and the stars, the poet sees the vision of God:

The sun, the moon, the stars, the seas, the hills and the plains

Are not these a Soul, the vision of Him who reigns.

Science and spiritual distress:

Tennyson, in his poem *In Memoriam*, confessed like some self-torturing mystic, the loneliness, the isolation and the despair which the new scientific view of the world had imposed upon him:

I falter where I firmly trod,

And falling with my weight of cares

Upon the great world's alter-stairs

That slope through darkness up to God.

The spiritual distress caused by the possibilities opened out by biological science is present in a number of nineteenth- century poems, even if their text does not refer directly to science. So in Matthew Arnold's moving poem *Dover Beach*, we get,

The sea of faith

Was once, too, at the full, and round earth's shore

Lay like the folds of a bright girdle furl'd

But now I only hear

Its melancholy, long, withdrawing roar,

Retreating, to the breath

Of the night-wind, down the vast edges drear

And naked shingles of the world.

Science and Victorian view of nature:

The impact of science on Tennyson's poetry is seen nowhere to such advantage as in his treatment of nature. It is seen in his minuteness of observation and accuracy and preciseness of delineation. He sees both

sides of the picture – the harsher as well as the pleasanter – and is quiet aware of the brutal struggle for existence that goes on everywhere in the external world. He finds nature "red in tooth and claw," full of rapine and plunder. A similar view of nature is expressed by Thomas Hardy. Scientific realism rather than romantic glorification characterizes the Victorian attitude to nature. Indeed, the scientific spirit has rather a chilling effect on imagination and this lack of imagination characterizes the nature-poetry of the period.

Scientific method: Accuracy, precision and realism:

More important even than the matter of science is the scientific method that invades the art of the age. In the accuracy of detail it would be impossible to rival the scenic description of Tennyson, whose nature poetry is like the work of an inspired scientist; and if we pass from poetry to history and fiction, we can see the dominance of the scientific method even more clearly. In the poetry of Tennyson and the novels of Thomas Hardy nature no longer remains a "kindly mother" with a "holy plan" of her own. Tennyson speaks of nature as "red in tooth and claw"; he is conscious of the grim struggle for survival which goes on within her. Thomas hardy is even more explicit. He paints both the ugly and the beautiful in nature, and regards "mutual butchery" as the law of nature. He gives a knock-out blow to the romantic exaltation of nature and makes us see her in her true color. Impelled by scientific rationalism, he scoffs at the Cause of Things, and conceives of Him as a blind power working ceaselessly, unmindful of human suffering.

(D) Heredity and environment:

The scientific spirit is discernible in other ways as well. The problems of heredity and environment preoccupy the attention of the novelists, like Thomas Hardy. “The social problems of the early Victorians, of Charlotte Bronte, Dickens, Kingsly and Reade give place to points in biology, psychology and pathology. The influence of Herbert Spencer and of Comte meets us in the pages of George Eliot; while the analytical methods of science are even more subtly followed in the fiction of George Meredith, the early writings of Mrs. Humphry Ward and the intimate Wessex studies of Thomas Hardy” (Campton- Ricket). Darwin's publications on evolution, investigations into the idea of race and empire, and notions about gender, influenced the women's movement in the Victorian Era as well.

The principal of induction:

The use of the principle of induction, involving as a primary process the patient accumulation of facts, may be seen in the work of John Carlyle, bitterly opposed as he was in many ways to the scientific attitude of mind; the same principle is at once the strength and weakness of the modern school of history. “The Victorian historian, like the scientist, loves to trace things to a beginning to generalize from the data collected and like buckle, to try and understand the psychology of a race, to give unity to the mass of data before him.”

Conclusion

Interdependence of science and literature:

It was Mathew Arnold who stressed the mutual inter-dependence of science and literature and showed how they affect each other. According to him,

> "The future of poetry is immense because in poetry where it is worthy of its high destinies, our race, as time goes on, will find an ever surer and surer stay. There is not a creed which is not shaken, not an accredited dogma which is not shown to be questionable, not a received tradition which does not threaten to dissolve. Our religion has materialized itself in the fact, in the supposed fact; it has attached its emotion to the fact, and now the fact is failing it. But for poetry the idea is everything; the rest is a world of illusion. Poetry attaches its emotion to the idea; the idea is the fact. The strongest part of our religion today is its unconscious poetry. More and more mankind will discover that we have to turn to poetry to interpret life for us, to console us, to sustain us. Without poetry our science will appear incomplete; and most of what now passes with us for religion and philosophy will be replaced by poetry."

Thus the relation of literature and science is considered mutually fruitful. Thomas Huxley a well known scientist of the Victorian era recognized the inherent value of classical learning. While he insisted that the student of science has no time to devote to it, he is confident that his study in literature will pay him in the long run by inculcating in him the scientific bent of mind. Another scientist named Tyndall tells how he was spurred on in the pursuit of science, by inspiration drawn from Tennyson. It is

also said that Darwin took intense delight in Shakespeare, Milton, Wordsworth and Shelley when he was young. If he lost his taste for poetry in the later phase of his life, he was deeply conscious that his life was maimed and stunted.

Pre-Raphaelite reaction to scientific materialism:

Certain poets of the Victorian Age, for example the Pre-Raphaelites, apparently show no influence of the scientific movement of the age. However, their theory of aestheticism, their exclusive concern with beauty, their theory of "Art for Art's sake" may also be taken as a reaction to the increasing materialism and matter-of-factness of the age, both of which were encouraged and fostered by science.

In the modern age, the scientific temper continues to influence men of letters and color their works. For example, H.G. Wells is a great writer of scientific romances. George Bernard Shaw's rationalism and anti romanticism and his theory of Life Force, all reveal the influence of evolutionary theories of biology and Aldous Huxley in his novel *Brave New World* depicts a civilization in which babies are decanted from bottles, happiness is mass produced by sleep hypnosis and sustained by Scent-organs and Soma, the perfect drug, having all the advantages of Christianity and alcohol, with none of their defects.

Works cited and consulted

Abrams, M. H. *A Glossary of Literary Terms*. Eighth edition. Thomson.Wadsworth.

Boston. 2005.

Cuddon, J. A. *A Dictionary of Literary terms*. Penguine Books. 1984.

Draper, John. *History of the Conflict between Religion and Science.* Harper. 1875.

Descartes, Rene. *Discourse on Method.* Penguine Books. 1637

Desmond, Adrian, 'Artisan Resistance and Evolution in Britain, 1819-1848', *Osiris*, 2nd series, 1987, 3, pp.77-110.

Fyfe, Aileen. 'The reception of William Paley's Natural Theology in the University of Cambridge', *British Journal for the History of Science*, 1997, 30, 321-35.

Jacyna, L.S. 'Immanence or Transcendence: Theories of Life and Organization in Britain 1790-1835', *Isis*, 74, 1983, pp. 311-29.

Moore, Jim. *The Post-Darwinian Controversies: A Study of the Protestant Struggles to Come to Terms with Darwin in Great Britain and America 1870-1900*. Cambridge, 1979.

Paley's William *Natural Theology.* Cambridge University Press. Cambridge. 1802.

Turner, Frank. *Between science and religion: the reaction to scientific naturalism in late Victorian England*, 1974.

White Andrew *The Warfare of Science with Theology in Christendom* Cambridge

University Press. Cambridge. 1876.

Young, R.M. 'Malthus and the Evolutionists: The Common Context of Biological & Social theory' in *Darwin's Metaphor: Nature's Place in Victorian Culture*. 1985.