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# EVOLUTION AND LITERARY THEORY

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Presupposing that all knowledge is the study of a unitary order of nature, the author maintains that the study of literature should be included within the larger field of evolutionary theory. He outlines four elementary concepts in evolutionary theory, and he argues that these concepts should regulate our understanding of literature. On the basis of these concepts, he repudiates the antirealist and irrationalist views that, under the aegis of "poststructuralism," have dominated academic literary studies for the past two decades. He examines the linkage between poststructuralism and standard social science, and he speculates about the ideological and disciplinary motives that have hitherto impeded evolutionary study in both the social sciences and the humanities. Finally, he distinguishes literature from science and argues that literary criticism integrates elements of both.

KEY WORDS: Aesthetics; Evolution; Humanities; Irrationalism; Literary criticism; Literary theory; Literature; Poststructuralism.

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Formulating a general principle of all intellectual development, Darwin declares that "all observation must be for or against some view if it is to be of any service" (Darwin 1903[1]:195). In this paper, I shall argue for the view that the study of literature should be included within the larger field of evolutionary theory, and I shall argue against the poststructuralist views that have dominated academic literary studies for about

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the past twenty years. I shall identify the basic points of opposition between evolutionary theory and poststructuralism, examine the linkage between poststructuralism and standard social science, and speculate as to the ideological motives that have hitherto impeded evolutionary study in both the social sciences and the humanities. Finally, I shall examine the relationship between literary criticism and science and outline a set of critical principles that seem concordant with the evolutionary paradigm.

In the past thirty years evolutionary research has been expanding rapidly into every region of the human sciences—for instance, into cognitive and developmental psychology, personality theory, neurology, medicine, epistemology, sociology, political science, cultural anthropology, ethics, and linguistics. This research constitutes the beginning of an intellectual revolution in the human sciences. Researchers in specialized fields have increasingly come to recognize that their own work forms an integral link in a total system of evolutionary knowledge, and many scientists have already begun to integrate their expertise in specialized areas with a broad range of interdisciplinary study. John Bowlby can provide an exemplary instance. In his studies of child psychology, of attachment and loss, Bowlby has constructed strong empirical alternatives to Freudian theories of infant development. Bowlby aligns himself with Karl Popper's concept of scientific methodology, assimilates Jean Piaget's work in developmental psychology, and explains that Konrad Lorenz's ethological studies of "imprinting" provide the basis for a crucial revision of Freudian drive theory. On the basis of interdisciplinary work like his own, he argues that "at last the principles of a unified behavioural science are beginning to emerge. . . . It is now possible to undertake a far-reaching programme of research into the social responses of man." The matrix of this research program is evolutionary theory. "Not a single feature of a species' morphology, physiology, or behaviour can be understood or even discussed intelligently except in relation to that species' environment of evolutionary adaptedness" (1982:211, 38, 174, 64). In a similar vein, after surveying some of the recent evolutionary research in anthropology, neurology, and psychology, anthropologist Derek Freeman concludes that the time is "conspicuously at hand, in all the human sciences, for a paradigm giving recognition of the radical importance of both the cultural and the biological (including the capacity for choice) and of their interaction" (1992:32). Taking the most extensive view of the disciplinary prospects of evolutionary theory, sociobiologist Edward O. Wilson argues that "social scientists and humanistic scholars . . . will eventually have to concede that scientific naturalism is destined to alter the foundations of their systematic inquiry" (1978:204). I believe Wilson is correct in this contention.

Up to this point, literary theory has largely ignored evolutionary biology and has pursued its own distinct course of interdisciplinary study. By taking Derridean semiotics and Foucauldian discourse theory as its matrix within which to synthesize the obsolete linguistics of Saussure and Jakobson, the obsolete psychology of Freud, and the obsolete sociology of Marx, current literary theory has generated an ever-more-complex system of rhetoric altogether detached from empirical study. This kind of scholasticism isolates literary study from the forces of progressive understanding within the larger intellectual community, and it eliminates the methodological constraints through which other disciplines establish their intellectual validity. (There have been a few efforts, marginal to the mainstream of literary study, to integrate literary theory and evolutionary biology: see Argyros 1991; Storey 1993; Turner 1992. The current article is abstracted from Carroll 1995.)

For the purposes of literary theory, all the more particular findings of evolutionary research can, I think, be organized under four large general concepts. After outlining these concepts, I shall set them in contrast with the principles that dominate current literary theory.

The most important biological concept is the relationship between the organism and its environment. This relationship is a matrix concept that provides an alternative to the matrix concepts available in other critical, philosophical, and ideological schools such as Freudianism, Marxism, phenomenology, deconstruction, and New Historicism. Before approaching any specific text, a critic necessarily adopts a working hypothesis about the elementary conditions under which all texts must operate—whether, for instance, texts inadvertently reveal repressed subconscious conflicts, allegorize the socioeconomic conditions of production, enact the triumphal self-affirmation of Being-In-The-World, display the indeterminacy of meaning in an endless semiotic dissemination, helplessly reproduce an autonomous cultural episteme, or reflect the interaction of an organism with its environment. In both the human sciences and the humanities, the concept of an interaction between organism and environment should, I think, take a position of hierarchical priority over all other such elementary structural concepts. This concept is the necessary presupposition for an evolutionary view of personal psychology, sexual and family relations, social organization, cognition, and linguistic representation.

The second specifically biological concept that regulates my thinking is the idea that innate psychological structures—perceptual, rational, and affective—have evolved through an adaptive process of natural selection and that these structures regulate the mental and emotional life of all living organisms, including human beings. This concept sets itself in irreconcilable opposition to the idea that human beings are blank

slates, that the structure of motivations and cognition is infinitely malleable, and that language or culture provides all qualitative content and structure for human experience. If literary authors operate within the range of constraints imposed by an evolved human psychology—as they clearly must—evolutionary study can help us to understand both the situations depicted in literature and the personal and social conditions in which literature is produced.

The third biological concept is the idea that all “proximate causes” or immediate human motives are regulated by the principles of inclusive fitness as “ultimate cause.” This concept does not imply that all organisms at all times, and especially not all human organisms, are directly seeking to maximize their reproductive success. But it does imply that all innate human psychological structures have, in ancestral environments, evolved under the regulative power of reproductive success and that these innate structures remain fully active at the present time. Perhaps the single most important corollary of this principle, for the purposes of literary analysis, is that reproductive success, in its twin aspects of sexual union and the production of successful offspring, is central to human concerns and thus to literary works. It provides an organizing principle that can be adjusted or modified or repressed (at great cost) but that cannot simply be ignored. (For an explanation of how inclusive fitness can be subdivided into two kinds of lifetime effort—somatic and reproductive—see Alexander 1987:40–41. For a list of more specific goals or activities that can be comprehended within these kinds of effort, see Barkow 1989:109–110; Carroll 1995:292–296.)

The fourth biological concept is the idea that representation, including literary representation, is a form of “cognitive mapping.” That is, representation is an extension of the organism’s adaptive orientation to an environment that is, in the first place, spatial and physical. The concept of “mapping” is not merely a metaphor for an abstract cognitive activity. Abstract activities are, rather, an extension of the primary cognitive function that locates the organism within its concrete, physical environment. The concept of cognitive mapping is common to evolutionary psychology, neurology, linguistics, and ethology (the science that concerns itself with the biological basis of behavior). The evolutionary psychologists John Tooby and Leda Cosmides observe that the word “cognitive” can be used in two quite distinct ways: to denote reasoning as opposed to emotion or other nonrational processes, or to denote “any psychological process,” including emotion and perception (1992:65). In accordance with this second usage, I use “cognitive mapping” to refer to any representational activity, including the literary representations that integrate rational, emotional, and sensory functions. It is to this total facultative integration I refer when I speak of the subjective quality of experience.

In opposition to the post-Kantian notion that cognitive and linguistic categories are autonomous forms that constitute their own objects, I would argue—in company with Karl Popper, Konrad Lorenz, Tooby and Cosmides, John Bowlby, and other evolutionary theorists—that cognitive and linguistic categories have evolved in adaptive relation to the environment. They correspond to the world not because they “construct” the world in accordance with their own autonomous, internal principles but because their internal principles have evolved as a means of comprehending an actual world that exists independently of the categories.

The central assumption implicit in these four concepts is that literary works reflect and articulate the vital motives and interests of human beings as living organisms. This assumption answers to my own deepest convictions about the nature of literature, and it conflicts fundamentally with the currently pervasive disposition to regard all motives and interests as merely self-reflexive linguistic or cultural functions. In opposition to these current assumptions, I contend that innate biological characteristics provide the basis for all individual identity and all social organization, that authors exercise originary power in the construction of literary figurations, and that literature represents objects that exist independently of language.

Poststructuralism has two distinctive tenets: the totalization of language or culture, and the claim that all knowledge is incoherent or self-contradictory. By totalizing language or culture, poststructuralists eliminate the concept of an antecedent reality that includes living human beings and the world in which they live. Jacques Derrida and Roland Barthes offer representative formulations. Derrida tells us, “*There is nothing outside of the text*. . . . [T]he absolute present, Nature, that which words like “real mother” name, have always already escaped, have never existed” (1976:158–159). So also Barthes: “Man does not exist prior to language, either as a species or as an individual.” The individual is constituted by culture, and “culture, in all its aspects, is a language” (1972:135). Fredric Jameson—currently one of the most prominent American critics and literary theorists—offers a representative formulation of the idea that all knowledge is incoherent or self-contradictory. “‘Poststructuralism,’ or, as I prefer, ‘theoretical discourse,’ is at one with the demonstration of the necessary incoherence and impossibility of all thinking” (1991:218). Speaking specifically about the “law” of genre, Derrida provides a concise formulation of the general principle of incoherence. “What if there were, lodged within the heart of the law itself, a law of impurity or a principle of contamination? And suppose the condition for the possibility of the law were the a priori of a counter-law, an axiom of impossibility that would confound its sense, order, and rea-

son?" (1981:53). The "law" of genre here constitutes only a more particular instance of the Law in general, that is, the general concept of sense, order, and reason. Derrida was the central authority for literary theory throughout the seventies. In the past ten years, Michel Foucault has assumed greater prominence even than Derrida. A central mission in Foucault's work is to apply Derridean irrationality to the field of intellectual history or, as Foucault himself calls it, "archaeology." "Archaeological analysis," he explains, "erects the primacy of a contradiction that has its model in the simultaneous affirmation and negation of a single proposition." Summarizing such formulations, we could say that post-structuralism presupposes that incoherence and contradiction are at the heart of an ultimate, linguistic reality—"the reality of discourse in general," as Foucault describes it (1972:155, 227).

In the philosophical tradition, contemporary critical theory affiliates itself most closely with the transcendental idealism that leads from Kant through phenomenology to deconstructive inversions of idealist philosophy. Traditional social science, in contrast, affiliates itself most closely with the Lockean tradition that restricts human motives to a few basic drives, such as hunger and sexual desire, and that attributes all mental content to environmental conditioning or "social learning." In relation to modern evolutionary theory in the human sciences, the metaphysical differences between these two traditions are perhaps less significant than their agreement in denying that human motives, ideas, and cultural practices are fundamentally directed and constrained by innate characteristics. Conventional social scientists and contemporary literary theorists would very largely concur in the general proposition that the affective and cognitive content of human experience is culturally "constructed." In respect to metaphysics, evolutionary theory affiliates itself more closely with the materialism of traditional social science than with the transcendentalism of the Kantian tradition, but, in respect to psychology, evolutionary epistemology and psychology assimilate Kant's profound insight into the existence of innate mental structures. The evolutionary thesis about human nature is that these innate mental structures have evolved in adaptive relation to the world. From the evolutionary perspective, these structures do not, as Kant believed, separate us from the world as in itself it really is. Instead, they give us access to that part of the world that is most relevant to our survival and propagation.

If the human sciences and the humanities, as twentieth-century academic disciplines, had become intimately affiliated with the biological conception of human nature, it seems likely that they would have achieved a much higher degree of reasoned consensus within and among their own disciplines, and they would thus have presented a

stronger defensive front to the overt irrationalism that now dominates the humanities and that has also begun to invade the social sciences.

The integration of evolutionary theory into the human sciences and the humanities has been obstructed by at least three forms of intellectual prejudice: political, disciplinary, and spiritual. I shall examine each of these sources.

For many people, the idea of biological constraints on human nature seems unacceptable because it supposedly limits the range of possible political reform. As Carl Degler explains, "The main impetus" for promoting the doctrine of cultural autonomy in the social sciences "came from the wish to establish a social order in which innate and immutable forces of biology played no role in accounting for the behavior of social groups" (1991:viii). If differences among people such as those associated with "nativity, race, and sex" could be attributed to variations in social organization, they could also be eliminated by careful social engineering. When it is translated into the field of modern literary theory, the desire for political reform typically locates causal efficacy not in social engineering but in rhetorical formulations. For instance, the New Historicist critic Brook Thomas cites resurgent German nationalism as an illustration of the "potential dangers in any mode of representation that assumes the independent, [sic] preexistence of that to be represented" (1991:xv). The logic is like that of someone who is confronted by a tiger and who seeks to protect himself by calling it a house cat. The basic principle here is enunciated by the Derridean critic J. Hillis Miller, the idea that "we make things what they are by naming them in one way or another." Miller holds, as a corollary, "that all interpretation of signs is false interpretation" (1986:109). In reality, the ideas of truth and falsity are interdependent. If no statement could be true, neither could any statement be false. All statements would be merely arbitrary. If we leave aside the logical incoherence of Miller's formulation, we may say that for Miller no statements are true but that false statements have absolute causal efficacy in constructing the world. While deconstructive textualism, as exemplified by Miller, is not itself oriented to politics, it nonetheless provides a necessary foundation for the radical political reformism predicated on the assumption that language, unconstrained by reality, can construct the world in accordance with its own arbitrary formulations. (On the reformist motives of Standard Social Science, also see Tooby and Cosmides 1992:34–40. For a critique of sociobiology animated by egalitarian idealism, see Lewontin, Rose, and Kamin 1984. For assessments of the empirical evidence concerning equality, see Baker 1981; Eysenck 1973; Herrnstein and Murray 1994; Rushton 1995; Seligman 1992.)

The attitude exemplified by Thomas and Miller—the belief that merely

by changing the names of things we can change the things themselves—is naturally most prominent among people whose rhetoric normally has no immediate practical impact on anything except their own position within the academic bureaucracy; it is prominent above all, that is, among literary academics. People whose verbal formulations are susceptible to falsification through experience—say scientists, engineers, businessmen, or soldiers—would very likely be astonished by the declaration that “we make things what they are by naming them in one way or another.” It is always possible to rationalize, to declare victory and go home, for example, but rationalizations have varying degrees of plausibility, and when an experiment fails, a bridge collapses, a business goes bankrupt, or an army is annihilated, the weight of reality exercises a significant counterforce to the plausibility of merely verbal constructions.

While biological thinking threatens to constrain the range of wishful thinking, it also threatens the foundational principles through which both the social sciences and the humanities have sought to establish their disciplinary autonomy. As Tooby and Cosmides observe, “Belief in culture, as a substance passed across generations causing the richly defined particularity of adult mental and social organization[,] defines one’s membership in the modern social science community.” For the founders of modern social science, “the Sociocultural level is a distinct, autonomous, and self-caused realm”—in Lowie’s formula, “*Omnis cultura ex cultura*” (1992:41, 28). Anthropologist Robin Fox observes that Durkheim’s “declaration that the explanation of social facts must be found in other social facts (not in psychological or individual facts) became the cornerstone of European and later American social science” (1989:64). All such declarations of disciplinary autonomy stultify the discipline they are meant to protect. By sealing off the phenomena it studies from causal relations to phenomena within other disciplines, a science places severe restrictions on its capacity for causal explanation and thus for development as a science. If, for instance, astronomers had insisted that the explanation of astronomical facts must be found in other astronomical facts, and not in physics and chemistry, we would have no theory of gravity and no explanation for the birth and death of stars. The science of astrophysics would never have been permitted to come into existence, and astronomy would have remained descriptive in a largely two-dimensional way, with no significant level of causal explanation.

In the literary field, a suggestion of disciplinary territoriality appears in the formulations of those among the New Critics who argue that the consideration of “extrinsic” causes such as social conditions and biographical influences should be marginal to literary study. In *Theory of Literature*, for instance, Wellek and Warren complain that “the most

widespread and flourishing methods of studying literature concern themselves with its setting, its environment, its external causes. . . . [S]urely causal explanation is a very overrated method in the study of literature, and as surely it never can dispose of the critical problems of analysis and evaluation” (1977:73–74). These claims are by no means so extreme as those of the social scientists cited by Tooby and Cosmides. They do not exclude all nonliterary causal factors but merely emphasize the “intrinsic” properties of literature. Northrop Frye provides a close analogue to the kind of disciplinary reduction exemplified by the formula “*Omnis cultura ex cultura*.” In *Anatomy of Criticism*, Frye presents his generic system as an effort to establish literary study as a science on the same level with other sciences, and he argues that “poetry can only be made out of other poems; novels out of other novels” (1957:97).

Professionalist ambition in literary study reaches its full maturity with poststructuralism. The leading figures in contemporary theory seek to promote literary study not only as an autonomous discipline but as a discipline that contains all others. The frequent manifestos in favor of “interdisciplinary” study are not usually recommendations that literary critics actually assimilate the information and methodological principles available in other disciplines; they are more often claims that the kinds of knowledge available in other disciplines can readily be translated into the principles of rhetoric or textuality. Thus, commenting on New Historicism—an interdisciplinary field inspired by Foucault’s historical researches—Fredric Jameson observes, approvingly, that “the changes wrought by the introduction of the concept of a text” do not “at first take place in the literary area, but they return to it later from an ‘outside’ modified by the notion of textuality, which now seems to reorganize the objects of other disciplines and to make it possible to deal with them in new ways which suspend the troublesome notions of ‘objectivity’” (1991:186). The disciplinary motive in current literary doctrines can be detected in the otherwise incomprehensible eagerness with which academic critics embraced Derrida’s counterintuitive assertions that “writing” constitutes an autonomous matrix of reality. If writing, not ripeness, is all, then literary critics have privileged access to an ultimate reality. It is hardly surprising that rhetoricians, aggrieved at the continually increasing authority and efficacy of science, would insist that the laws of discourse take precedence over the laws of science. Moreover, if literature refers to the world of experience, and is in this sense primary, then criticism, which refers only to literature, would be “secondary.” If, however, literature itself subsists only within a world of words, it is in no way prior to criticism. Thus, twenty years ago, the phrase “secondary literature,” denoting critical commentary on literary texts, was standard usage. One now almost never hears the phrase. Poststructuralism,

should be clear, invests rhetoricians with an authority at least equal to that both of scientists and of literary authors. As Paisley Livingston aptly describes it, current academic literary ideology is "a defensive reaction" against "the unsettling development and growing influence of the natural sciences" (1990:19).

For those who harbor a confident faith in the necessary intellectual legitimacy of institutionalized disciplinary practices, it might be difficult to credit that an entire discipline such as literary theory could go deeply, basically wrong—that it could be corrupt in motive and fundamentally factitious in its elementary organizing principles. In partial answer to any such understandable skepticism about the perspective I am taking on contemporary literary theory, it is worth noting that the literary tradition has itself registered the vices to which criticism is prone. One of the most succinct and incisive satires of criticism appears in a work published more than two hundred years ago, Alexander Pope's "An Essay on Criticism." Pope's style is distinctive of his period, but in respect to the content of his commentary, the following passage could have been written by an observer at any current convention of literary scholars:

So by *false Learning* is good *Sense* defac'd;  
Some are bewilder'd in the Maze of Schools,  
And some made *Coxcombs* Nature meant but *Fools*.  
In search of *Wit* these lose their *common Sense*,  
And then turn Criticks in their own Defence.  
Each burns alike, who can, or cannot write,  
Or with a *Rival's*, or an *Eunuch's* spite (1961:241–242).

As the great eighteenth-century critic and scholar Samuel Johnson observed, "criticism is a goddess easy of access and forward of advance, who will meet the slow and encourage the timorous; the want of meaning she supplies with words, and the want of spirit she recompenses with malignity" (1963:184–185). By eliminating the creativity of individual authors, critics can assuage their anxious sense of subordination to writers of poems, plays, and novels, and by denying the validity of objective knowledge, they can gratify the competitive hostility they feel toward science. By promoting "rhetoric" or "discourse" as the matrix of all knowledge, they can tacitly proclaim that mere verbal fluency, unconstrained by any concern for the objective validity of their propositions, can have a supreme intellectual value.

The political and disciplinary motives that animate poststructuralist thinking form an uneasy alliance with a quasi-religious desire to preserve an area of human subjectivity or spirituality that is somehow, mystically, distinct from the objective world that can be known by science.

Frye could again serve as the paradigmatic instance for the reciprocal influence of disciplinary and spiritual motives, but the desire to identify literature with a realm of the spirit, and to segregate this realm from the objectively knowable world, has animated a broad spectrum of critical theory. It is the guiding spirit of Sir Philip Sidney's Christian Platonism; it dominates Kant's *Critique of Judgment*; and it is a central motive behind Romantic literary theory, Husserlian phenomenology, Russian Formalism, and the more doctrinaire version of American formalism ("New Criticism") represented by John Crowe Ransom. The various traditions of transcendental aesthetic theory provide a large context for the poststructuralist hostility to positive scientific understanding, and these traditions join hands with that range of utopian social theory that wishes to invest human social ideals with an autonomous creative power that transcends the constraints of an evolved human nature. (The spiritual uses of poststructuralist irrationalism are perhaps most readily apparent in the case of a strange doctrinal hybrid, Christian deconstruction. For instances, see Monsman 1980; Ryals 1988; Shaw 1987, 1990.)

The three main motives that seem to animate cultural construction—political idealism, professional ambition, and sublimated religious sentiment—obviously conflict with one another in serious ways, but they all three join forces to obstruct a concern for the truth. Poststructuralists do not, of course, believe in the truth, but evolutionary epistemologists do. In accord with the evolutionary view, I shall maintain that the desire for the truth is in itself a legitimate motive, and it is a motive that should not be sacrificed to gratify social, professional, or spiritual desires. Those who violate their own intellectual integrity for the sake of values they hold more dear corrupt the very values which they make the sacrifice. To sacrifice intellectual integrity for either spiritual yearnings or political hopes is sentimental and weak-minded, and to sacrifice it for professional ambition is cynical and ignoble.

What is the appropriate relationship between science and literary criticism? In order to answer this question, we shall need to make some elementary distinctions between literature and science. Scientific works are necessarily dominated by a concern to reduce the object of inquiry to abstract principles that can be submitted to an impersonal process of testing within an established framework of ideas and procedures. In literary works, in contrast, personal perspectives and emotional responses are integral to both production and reception. Unlike the scientist, the literary writer expresses his or her own personal sense of the subject and also seeks to elicit personal responses from the reader. Science is valid in the degree to which it has impersonal rational validity. Literature can also deal in universal principles of reason, but it is effective only in the degree to which it situates these principles in the sub-

jective experience of human beings. Thus, Edward O. Wilson declares that science can never be "a substitute for art" because science "is not designed to transmit experience on a personal level or to reconstitute the full richness of the experience from the laws and principles which are its first concern by definition" (1978:206). So also, the poet Wallace Stevens identifies "poetic truth" as "an agreement with reality, brought about by the imagination of a man disposed to be strongly influenced by his imagination . . . expressed in terms of his emotions or, since it is less of a restriction to say so, in terms of his own personality" (1951:54). (For definitions that use similar categories and make similar distinctions, see Brooks and Warren 1949:33–39, 1976:6–7; Eibl-Eibesfeldt 1989:702; Eiseley 1979:275–279.)

If we establish a polar opposition between the scientific concern for impersonal, objective knowledge and the literary concern for subjective experience (including the experience of ideas), we can locate literary criticism in a position that is intermediate between these polar concerns and that is occupied with both. That is, criticism is concerned both with gaining objective knowledge about literature—as the great Victorian critic Matthew Arnold puts it, "to see the object as in itself it really is" (1960:140)—and also with communicating the personal and cultural value of literature. Henry James, commenting on Arnold's criticism, provides a historical instance of this polar conception. James identifies the requisite qualities of criticism as "feeling and observation" on the one hand and "science" and "logic" on the other. "It is hard to say whether the literary critic is more called upon to understand or to feel" (1984:713). In concordance with formulations such as this, we can say that literature and criticism form a single field of study. Criticism is not only the medium or discipline for the study of literature, it can also be read, in its subjective aspect, as literature.

In his classic essay "Literature and Science," Matthew Arnold groups literature and criticism together as a single form of activity that he designates "humane letters." In terms similar to those used by E. O. Wilson, he defines humane letters by distinguishing them from science, and he defines science by restricting its cognitive scope to "knowledge." Opposing T. H. Huxley's effort to yield supreme cognitive authority to science, Arnold argues that knowledge is only one of the "powers" that "go to the building up of human life." He concedes that through the accumulation of empirical knowledge "at last we come to propositions so interesting as Mr. Darwin's famous proposition that 'our ancestor was a hairy quadruped furnished with a tail and pointed ears, probably arboreal in his habits.'" Arnold does not reject this proposition nor declare it irrelevant to humane letters. Instead, he argues that to grant the validity of this new, scientific conception of man's place within the natural

order is only one phase in the whole cultural process. With every advance of knowledge, "the need of humane letters, as they are truly called, because they serve the paramount desire in men that goes on for ever, should be for ever present to them—the need of humane letters to establish a relation between the new conceptions, and our instinct for beauty, our instinct for conduct, is only the more visible" (1974:66, 64, 66). Arnold's own understanding of "instinct" is large and loose enough to be integrated with his teleological conception of cultural development, but the idea that ethics and aesthetics form part of human nature is an empirically legitimate concept that does not depend on cultural teleology. (For treatments of ethics from an evolutionary perspective, see Alexander 1987; Darwin 1980; Frank 1988; and Wilson 1993. For treatments of aesthetics from an evolutionary perspective, see Dissanayake 1988 and Eibl-Eibesfeldt 1989:665–702.) Arnold's rationale for humane letters is, I think, basically sound. Criticism achieves the kind of major canonical status represented by Samuel Johnson or by Arnold himself only when it reflects the personal judgment of a strong, highly cultivated mind that has succeeded in formulating a total set of values and beliefs. Independence of judgment and originality of conceptual formulation are requisite qualities for this kind of criticism, but to realize their full value these qualities must be used to assimilate and articulate a rich cultural tradition. By integrating genuinely personal judgment with genuine cultivation, criticism achieves the large, general validity that we designate by the word "authority." Major critics are people who have exceptionally powerful minds, who use literature to help construct their world view, who give expression to this world view by commenting on literature, and who thus offer examples for the kind of value and importance that can attach to the study of literature.

In the best criticism, whether or not it achieves the level of the finest greatest critics, the scientific and subjective aspects of criticism are complementary. As Arnold rightly saw, in articulating the subjective qualities of experience, literature provides one of the main sources of information for formulating cultural values. Literary critics can and should actively assimilate this information to their own personal sense of the world, and they can and should engage in the business of "cultural criticism," that is, of representing the educated cultural conscience of their time. At the same time, as Arnold also argues, critics must be prepared to assimilate the best scientific and scholarly information that is available to them. The knowledge we derive from literature itself is a highly developed body of intuitive qualitative judgment about human experience, and this knowledge can serve as an important point of empirical reference for assessing the adequacy of speculative propositions about human psychology and human culture. In turn, as the critic assimilates new sci-



tific information, he or she necessarily engages in a constant process of revising and developing his or her theoretical constructs, and new theoretical constructs should enable the critic to understand literature itself in ways it has never been understood before.

Joseph Carroll is a professor of English at the University of Missouri–St. Louis. He has published books on Matthew Arnold and Wallace Stevens. In his most recent book, *Evolution and Literary Theory*, he seeks to build a bridge between science and the humanities.

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