

THE USES OF LITERARY DATA

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Humanities and Sciences

It is not immediately evident that Darwin has any significance for those studying literature. For the conservative or appreciative critic he might be thought to typify scientific philistinism, and for others a naive trust in the value of the scientific method. On the first point we have Darwin's own confession:

Up to the age of thirty, or beyond it, poetry of many kinds, such as the works of Milton, Gray, Byron, Wordsworth, Coleridge and Shelley, gave me great pleasure, and even as a schoolboy I took intense delight in Shakespeare, especially in the historical plays. [...] But now for many years I cannot endure to read a line of poetry: I have tried lately to read Shakespeare, and found it so intolerably dull that it nauseated me (Darwin 1958: 138).

To make things still worse he claimed to prefer novels, "if they do not end unhappily", and provided that they contained "some person whom one can thoroughly love." (Darwin 1958: 138–139).

On the second point, Matthew Arnold acts as undertaker:

I have heard it said that the sagacious and admirable naturalist whom we lost not very long ago, Mr. Darwin, once owned to a friend that for his part he did not experience the necessity for two things which most men find so necessary to them – religion and poetry; science and the domestic affections, he thought, were enough. (Arnold 1883: 336–337)

Hardly anyone would agree to live in accord with such asceticism, but the course by which Darwin arrived at it is not so unlike that undergone by many students of literature, and even by some who go on to become professional literary scholars. After a period of infatuation, or addiction, comes a deepening sense of the futility of literary and critical study, and after that, for the academics at least, a desperate attempt to convert their criticism into something which will allow them to hold up their heads in common-room and lecture-hall. This often takes the form of an exaggerated insistence on the value of a humanistic education, or an equally insistent denial of this position combined with an attempt to erect a critico-theoretical structure, the study of which will constitute the disciplined education that reading Shakespeare obviously does not. These two parties have much in common, and overall, one might say that criticism squares up to its subject material rather as Paleyite natural theologians related to the creation, but there is an important distinction between the revolutionaries and the conservatives. Whereas those still insisting on the importance of reading literature for its not very clearly specified human values are obvious analogues of clerics finding evidence of the exquisite handiwork of God in every biological structure and every perfect orbit, radical critics might be better termed Natural Diabologists. Their mission is to expose literary texts as the ramshackle contriv-

ances of a predatory demi-urge buried deep either in the political structure of the society that produces the literature, or, mystically, in language itself. In the last twenty years the Manicheans have had much the best of the battle with their pious colleagues, but these local triumphs have been unable to conceal the process of protracted failure afflicting the entire project of which they are a part. The study of “literature as literature” wilted in the university when it became clear that, though an agreeable hobby, its intellectual rewards were slight, and “literary theory”, as it stands currently, is now going the same way, and it must, for literature doesn’t explain the world very well, and literary theory is at best a poor explanation of literature.

The reason for this general decline is simple. Both radical and traditional literary criticism are incompatible with the rest of human knowledge, and are therefore superfluous. Within the university, and arguably elsewhere, we don’t need a religion of poetry or its inversion, because science is enough. For literature and non-professional discussion of literature, this matters less, since the public world will probably maintain both, but for academic critics and literary theorists and critics incompatibility will ultimately be professional death by professional solipsism.

The root cause of this isolation is readily identified; workers in the humanities have clung to the Natural Theological and Diabological attitudes long after the majority of the intellectual world has embraced the major alternative, Naturalism. It is not too late to tag along, and I hope in this paper to sketch some of the reorientations that are needed to bring about worthwhile change, and outline, if only for researchers in other fields who may wish to encourage its first falterings, some of the ventures that might be undertaken with the new pilot.

Naturalizing Literary Studies

We might begin by saying that a literary study which was correctly naturalized would provide physicalistic, causal, explanations of cultural objects, by which we would mean not only ideational objects, brain states, but also consequent behaviors, and objects external to our bodies, such as books. It would thus be able to relate the results of its work to other areas of science. For such an attempt to succeed the overall government for this process of naturalization must come from a field where these principles are already widely accepted. Biology, and darwinian thought in general, is on two counts a clearly appropriate source. Firstly, darwinized cognitivism (Tooby and Cosmides 1992) provides a fully materialist psychology on which may be based a satisfying generational theory of culture. Secondly, darwinism introduces population thought to the study of cultural objects, as exemplified in the epidemiological theories of Dan Sperber (1985, 1990, 1994, 1996a, 1996b) and the work of Pascal Boyer on the distribution of religious ideas (1994).

There are already, as it happens, numerous signs that biology is having an effect in literary study, and that this process of naturalistic theorization is taking place, and Joseph Carroll's work, including his monumental *Evolution and Literary Theory*, is an inescapable, and in many ways an estimable, sign of this change (Carroll 1995a, 1995b; for discussion of Carroll's position see Constable 1996). However, just as darwinism led some thinkers in the nineteenth century to abandon religion for an imperfect naturalism in which the process of natural selection became an authority to be venerated and obeyed, there seems every reason to suppose that the impact of the biological sciences on the humanities in the coming years may amount to little more than a revision of current practices. The recent history of literature departments, and the way that fields as diverse and diversely creditable as psychoanalysis and linguistics have been used, shows us how Darwinism will be employed. This new inrush of thought will be taken up in order to retool the engine of critical commentary, and so enable critics to work over their chosen texts once more, this time producing evolutionary readings and darwinized interpretations. In short it will be used to reinforce a biologized criticism. To continue the metaphor, since departments of literature regard the conceptual product of other disciplines as a mere component part of the real business, just cogs for the motor of literary discussion, contemporary critics see their own work as an end-product. They do not deny that other disciplines also have products, but they reserve the right to pass critical judgment on them. Thus products in the sciences become subject to the ethical criticism of the university literary world, which becomes the final arbiter of value. So, not only do critics regard themselves as the end users of all other products within the intellectual world, but they regard their own production as the end product to end all other products, and the medium through which the intellectual activities of all other thinkers are to be represented to students and to the public. The following, the opening statement from a recent study of romantic poetry, is a concrete example of the problem:

My purpose in this book is to encourage the development of an ecologically oriented literary criticism. This criticism, escaping from the esoteric abstractness that afflicts current theorizing about literature, seizes opportunities offered by recent biological research to make humanistic studies more socially responsible. Biologists have arrived at the frontier of revolutionary new conceptions of humanity's place within the natural world. Humanists willing to think beyond the self-imposed political and metaphysical limits of contemporary critical discourse can use these scientific advances to make literary studies contribute to the practical resolution of social and political conflicts that rend our society. Humanists could help to ensure, for example, that the effects on our world of new biological research are beneficent rather than malign. (Kroeber 1994: 1)

In this case of retooling the writer "seizes" ideas from the sciences, wields them in conflicts with other schools, and then attempts to turn them on the sciences from which they were taken. When literary critics speak of taking an interest in science, or of becoming integrated with it, this is what they envision. They wish to benefit from association with the immense and deserved prestige of the sciences without forgoing any authority. Literary researchers are, in the devastating phrase of one eminent historian, scholars who think that science is a "topic rather than a method" (quoted in Alexander 1995: 1).

The problem is not a simple one, even for those who recognize that it must be solved, since criticism is deeply entrenched in the working habits of most researchers in the humanities (see Carroll 1995a, Cooke 1995, Dissanayake 1992, Dissanayake 1995, Fox 1995, Nesse 1995, Storey 1996), and no evaluative approach, however subtle the moral connoisseurship it embodies, can be a science of culture. Criticism articulates conflicts between individuals and groups within a co-operative society, and is purpose-built to register such differences. By contrast, scientific method is designed to facilitate agreement and to minimize interference from the divergent social, economic, political, and sexual interests of the researchers. The point can be illustrated by observing that scientists in two warring nations can readily agree upon the validity of a piece of work by either one of them, and governments expend large sums of money in espionage to extract scientific secrets from hostile states, whereas discussion of cultural materials, literature or even music, becomes still more contentious in times of open conflict than it was before. If translated onto the personal and social planes these points apply equally well. Conflicts in criticism are conflicts of personal or personal-and-sectional interest, and critical discussion is an area in which such conflicts take place, so assisting individuals in negotiating settlements. This proposition is neither novel nor extremely controversial, and is widely recognized amongst Marxist critics, such as Terry Eagleton, who has persuasively described the history of criticism in England as co-extensive with conflict, though his description is needlessly and perhaps misleadingly disabled by being limited to class-conflicts (Eagleton 1984).

The extremely broad variety of mutually antagonistic approaches to literature is a registration of social conflict, and the fact that these approaches cannot be brought into any kind of harmony, that teachers have been compelled, in order to make educational sense of this question, to “teach the conflicts”, is inevitable, for there are no concluded agreements, only temporary alliances. On this view, then, criticism cannot be reformed, and its introduction into the university as a discipline during this century is to be regretted. The rejection of academic criticism will not only enable a scientific study of literature, freeing those who, in history, linguistics, stylistics and poetics, are at present often forced to camouflage their work as subservient to critical projects, but would also benefit public critical debate, because university criticism is clearly neither sufficiently responsive nor capacious to be able to meet public needs. That is to say, in large societies with numerous interest groups and rapidly changing interests, a self-elected élite of literary specialists cannot, even when equipped with an expanded canon and unrestricted ingenuity with which to parse its texts, adequately represent and debate those conflicts. Such matters are already better handled through the more adequate electoral democracy of periodical publications and electronic media.

Integrated Science and the Study of Literary Data

Evolutionary thinkers need not and perhaps should not concern themselves with this general political problem. However, they must ensure that literary researchers are prevented from bringing criticism into an evolutionarily oriented study of culture. This is not to advocate a return to some earlier position in the “Scholars versus Critics” debates of the past, for, from the perspective outlined here “Scholars”, as they have been defined in the university, are deeply permeated with “criticism”, and their scholarship is driven by critical imperatives which may, as radical critics have correctly claimed, be only more or less obscured or denied. Nor is it a way of rejecting “theory”, and returning the literary humanities to some more orthodox common-sense position underwritten by the authority of science. Insofar as the drive to theory has been motivated by a desire to meet the problems inherent in a University incarnation of evaluative criticism there is much with which to sympathize, though the solutions have not been fortunate. Indeed, since they fail to provide powerful causal explanations of cultural phenomena, to organize known data, or to define research programs, these solutions hardly deserve to be called theories at all. Where there are insights, with regard to the use of cultural objects to manipulate others, for example, these lack any clear definitions of what the interests are, and how the manipulation takes place, points on which darwinian science has much to say (see Cronk 1995, Eibl-Eibesfeldt 1988: 61, Scalise Sugiyama 1996). The aim, then, must be to produce an agreed and robust theory of culture, and the best chance of achieving this is to base the attempt on theories that are already robust, that is to say, the sciences, and to aim for a degree of conceptual integration which will allow university researchers working on cultural objects to avoid the pitfall of criticism, and become part of a co-operative scheme. This means that literary workers have to be shown where they fit into an integrated science, and how they contribute to its conceptual product.

The most important step in this positioning is to accept that an integrated science must be physicalist, and should subscribe to ontological reductionism. Working out the implications of this initial statement entails locating the humanities in the hierarchy of reduction, or, to use terms from Tooby and Cosmides again, to place the phenomena under study, in the “integrated causal model” (Tooby and Cosmides 1992: 23). Biology reduces ontologically to chemistry, and chemistry to physics, and, within biology, behavior reduces to physiology. It is common to speak of these areas as levels of analysis, each with its own modeling principles (theory reduction is not assumed), and this seems unobjectionable, at least on pragmatic grounds. However, it is important to recognize that within the field of behavior itself the only levels of which it makes sense to speak are defined by the number of individuals involved in any particular act. A group action reduces to individual actions, and thus to physiology. There is no level *of* “food cultivation”, or of “shelter building”, “sexual activity”, “tool manufacture”, or for that matter of “linguistic activity”, though these of course have an appropriate level *at* which they may be studied. “Linguistic activity”, and thus the writing of novels and plays and poems, like “shelter building”, is a data

field available to many levels, on which we may draw when studying a particular act. And so we arrive at the point of most interest for literary scholars, the point at which books, printed pages, have to be examined within this scheme. It is initially implausible to think that they reduce to physiology, and certainly if we place them in a level of their own, it is awkward to so reduce them, but if we regard them as *components in and products of an act* the difficulty vanishes, and we are left with material objects, bound pieces of paper covered with ink, as elements in the extended causal consequences of the organized matter that constitutes the generating person or persons. For example, if I want to examine a courtship act I can specify its level according to the numbers of individuals involved in it, and then turn to the relevant component data fields for that act, amongst which could be linguistic data.

This distinction between *levels of analysis* and *data fields*, is primarily of use because it will prevent the isolation of those who, inevitably, specialize in particular kinds of data. If literary specialists are allowed to think of their work as constituting a level, then they will tend to insist on some degree of autonomy, and before long they will be demanding independence. If, on the other hand, they are encouraged to regard their work as the study of a data field, then the risk of dissociation will be greatly reduced, since anyone working on literary data will have to recognize that constant reference must be made to other data concerning a particular act. Furthermore, by insisting on the unity of the behavioral level, and the multiplicity of data fields within it, the question of integrational compatibility is greatly simplified. Rather than worrying as to whether the “literary level” should integrate with history or with linguistics, or with some other field or combination of fields, we can say that human behavioral studies itself integrates along only one frontier; that it is to say that it must integrate with the study of the psychological mechanisms which generate behavior. Thus working in the literary data field means

1. Studying literary objects as evidence of human acts, and
2. Producing intelligible, and that means abstract and economical, descriptions of those acts for other workers at the behavioral level and also for psychologists.

In order for this to appear feasible some clarification of the ontological character of the data field under study is clearly needed, and then a clarification of the way that study of these objects relates to other elements in a unified scheme.

Population Thinking and Cultural Study: The Epidemiology of Representations

Ernst Mayr has observed that the most significant lesson of darwinism for our general philosophy is the replacement of essentialism by population thinking (Mayr 1991: 40ff), and certainly we can transform our approach to literature when we determine ourselves to regard printed materials as physical elements in a population of such and other related elements, and an individual's reading of a text as one of a population of readings. The clearest statement of this line of thought and its implications is found in the writings of the anthropologist Dan Sperber, whose proposed epidemiological program (1996a) aims to explain the distribution of "representations"; where this term is defined as an "object [that] is a representation *of* something, *for* some information processing device". Thus liberated to "talk of representations as concrete, physical objects located in time and space" still more illuminating distinctions can be introduced:

At this concrete level, we must distinguish two kinds of representations: there are representations internal to the information processing device, i.e. *mental representations*; and there are representations external to the device and which the device can process as inputs, i.e. *public representations*. (Sperber 1985: 77)

The work that Sperber outlines is the study of the causal chains connecting members of these classes, that is to say by making a mental representation we may be motivated to change our external environment, perhaps by constructing a public representation which is then processed by another individual to form a mental representation. This individual may then be motivated to form a new mental representation, perhaps including elements of the older one, and thus to make a new public representation. To put it colloquially, someone may have an idea, write a piece of text about the idea, which another person may read and then, in turn, write about. This model has considerable advantages over others based on the "replication" of cultural particles (Dawkins 1989) and the co-evolution of these with genes, since it does not require us to assume that when a reader processes a text something is, in a very obscure way, being copied or transmitted (see Sperber 1996a 100ff, Boyer 1994: 283–284 for more detailed discussions of this point, and also Tooby and Cosmides 1992: 118). If we try, for example, to say that when I read a sonnet the "meaning", or some sort of "information", is copied, then it becomes necessary to show how this is physically instantiated or coded, and why this deserves the term "copying". This does not appear to be possible, and so to talk of meaning or information transfer is little better as a causal account than a philosophy of spirit. Sperber's approach, on the other hand, holds that communication is not principally a process of transfer, but the provision of encoded cues from which the recipient can make inferences, the bulk of communication resulting from the inferential stage. Thus successful communication involves predicting what sort of cues will provoke a desired inference (Sperber and Wilson 1995).

The value of this approach is that its materialist foundations prevent us from mistaking abstract descriptions of these causal chains for causally efficacious objects, as writers about

literature routinely do. Errors of this type are common even amongst those who, on paper at least, spurn idealism, since the identification of “materialism” with the links between economic structure and ideology has precluded a more satisfactory causal theory based on materialism as it is understood in the natural sciences (see for examples Jenks 1993, the papers in During 1993, and Williams 1981). It also short-circuits fruitless discussion of whether there is a one and true immanent meaning for any particular text, for clearly there cannot be, and yet equally clearly there is much to be said for trying to ensure that we are aware of the inferential patterns planned and expected by the cue generator. Similarly, melodramatic skepticism concerning the absence of a shared meaning or a shared text is defused by recasting its points in a physically precise fashion which does justice to the anti-idealist case concerning meaning, but does not oblige us to feign anaesthesia with regard to the communication that does occur. Our attention is concentrated, firstly, on actual physical instances of a representation, and, their actual psychological consequences when processed as inputs by a particular reader, and secondly, on the study of the representation’s abstract, formal, properties as “potential psychological properties” (Sperber’s terms). More crudely, we are forced into seeing how texts *in fact* work on readers and how they *might* work on readers (and of course on the representations of this potential entertained by writers). Sperber’s own example of this is oral, but we may take it as the brief for a rigorous study of literature:

Potential psychological properties are relevant to an epidemiology of representations. One can ask, for instance, what formal properties make Little Red Riding Hood more easily comprehended and remembered [...] than, say, a short account of what happened today on the Stock Exchange. (Sperber 1985: 78)

Equally, we can ask ourselves why certain formal properties seem to recur in certain populations of representations. For example it might be asked why all linguistic communities have a set of utterances and formal structures which are restricted in extent, verse, and in certain other ways, and are, mostly, considered special or poetic, as opposed to utterances which are unrestricted in extent, and are, mostly, regarded as undistinguished prose. A psychologically motivated discussion might be able to provide some answers to this question (Constable 1997, and Forthcoming attempts this). For if, as Sperber puts it, “culture is the precipitate of cognition and communication in a human population” (Sperber 1990: 42), then knowing something of the cognitive mechanism and the terms of the communication may enable us to explain why it is that we get the precipitate that we do get and not some other. Most importantly, great emphasis is thrown onto the significance of history. Epidemiological studies must always be taken as speaking about a particular human population at, or during, a specified time, for the potential psychological properties of a public representation depend crucially on the state of the device which processes it as an input, and this state depends in large part on the mental representations which already inhabit the device. For instance extremely restricted forms of verse appear to have been much more widespread and prestigious in the past than at present, and a causal

explanation for this probably does not involve genetic change and consequent changes in brain modularity, but is almost certainly to be explained by competition with other representations, for example with unrestricted forms that have, on average, higher pragmatic value.

Literary study, then, is not simply a business of processing texts, or exposing students to appropriate external representations, cultural background as we say, in order that they too may process texts and generate approved internal representations, negative or approbatory or bemused. Or rather it should not be so, though that at present is what it is. Both conservative and radical critics might reply that to evade these matters is to ignore all the features that make cultural representations, and texts in particular, of interest. My own view is that Pascal Boyer's rejection of this type of remark with regard to his study of religion is correct, that "Lack of humanistic 'significance' or interest is often the price to pay for causal relevance" (Boyer 1994: 295), and that this is a price worth paying. Indeed, I would go further, by re-emphasizing the points made against criticism earlier in this essay, and suggest that causal explanations are the only ones worth disciplinary pursuit in the university (Sperber, it should be noted, does not accept this view – Sperber 1996a; 98). Taking our materialism and our commitment to causal explanations seriously means directing attention away from the muddled discussion of essentialist meaning, a soft-target in any case, and focusing instead on an examination of actual instances when public representations are processed and form mental representations, and so on the reasoned, and non-evaluative, examination of the potential psychological properties of public representations. In other words the study of literary objects, and of other cultural objects, is to be justified by the light it sheds on the cognitive systems that precipitate them, and on the process of this precipitation.

The Value of Literary Materials

At present researchers have little experience in using literary materials as data in this way, and the making of psychological inferences from them is liable to be rejected as intentionalism, or confused with Freudian attempts to pathologize the writer, or ridiculed as an outdated belief in the formative importance of the individual author. Some combination of the first and third of these points is liable to be extremely popular, and requires notice because it in fact contains an element of interest to be salvaged, namely the suggestion that not all the order in a text is generated by the author. This point can easily be accepted within the terms of the argument presented here, but without therefore rejecting the concept of human agency altogether. The challenge for those who do not adopt a physicalist ontology is to explain how the complex order of texts can be causally explained other than by reference to a human agency, an author, or authors, or editors. At present the only source of such order that we know of is the order in human minds (computer generated texts are not autonomous of external instruction, yet, and even when they are so will long bear their human heritage). This order has two sources:

1. The order resulting from the action of the evolved modular structure of the mind, a modular structure that also makes the learning of order possible.
2. Learned order.

The order in a particular text, however, may not be generated by the named author of that text, as is obvious from quotations. If, for example, I quote from Shakespeare, "To be or not to be..."; the order in that text fragment is to be explained by reference to the order generation in the brain of a person, thought to be William Shakespeare, but its occurrence in my text is to be explained by reference to the order generation in my brain. Similarly, the order of a natural language English text, such as that which you are now reading, is not to be explained wholly as an order generated by my brain. Much of it is to be explained as an order learned by my brain, with its specially adapted module for the purpose, a module which also gives a considerable amount of ordering to that learned material. Appropriately qualified, then, there is not only no objection to discussing the role of authors in text generation, but it seems that there is no alternative, and that many inferences are as unavoidable as seeing something when we open our eyes.

With these very basic levels of inference legitimated we can safely go further into more dubious territory, and in practice we will rarely be confronted with materials that are not accompanied by a context that prevents the formation of misleading conclusions. The range of uses for literary data is obviously very large, and there is no need to attempt even a vague outline of the possibilities, but there is some point in reminding ourselves that the degrees of complexity will be extremely variable. On the one hand relatively simple questions concerning structural properties, verse form might be a representative case, can be approached with confidence. For example, any inference which supposed that the order found in a sonnet was to be explained as the invention of a twentieth-century poet would be unsound, since the sonnet

form can be found in the literature of previous centuries. The fact that a certain writer wrote in a sonnet form does allow you to make inferences, however, about exposure to that form. We can say, safely, that any poet who has written a sonnet in the last twenty years, was exposed to an external representation of a sonnet and formed an internal representation which led to him creating another external representation with similar formal properties. Such banalities form a secure basis for more adventurous activities. We might, for example, wonder why this form has remained in circulation for so long, and perhaps make inferences about the mind's susceptibility to sonnets, as compared to other verse forms. Alternatively, we might construct hypotheses relating to the functions of verse forms as compared to non-verse (Constable 1997). Such questions can be approached more or less independently of other properties, and are amenable to simple counting surveys. Analysis of narrative techniques would only be marginally more difficult, and a good deal of the work in that area has already been done by theorists of fiction.

On the other hand, the construction of psychological hypotheses relating to complex formal properties in the local texture of a work presents a theoretical headache. No agreed techniques for content analysis exist, and there is always the risk of becoming bogged down in futile critical debate over interpretative differences. One possible way of cutting through this Gordian knot would be to use published criticism as the source of surveyed interpretation, but this, though helpful, only transfers the interpretative problem from one text to a multitude. More problematic still is the difficulty of sorting out which of the many properties of a novel, say, causes it to become epidemically published, and why its authors gave it these formal qualities and not others, though some headway has already been made here by those using the content of fiction as data for psychological research on sexuality (Ellis and Symons 1990; Whissell 1996). Optimistically we might say that this rich data field holds many challenges, but it might be as well to admit at the outset that the complex potential psychological properties of texts constitute a very noisy data field, and that, even when filtered, the resulting information may not be of a very high quality.

Setting aside these doubts, we may happily take up the tools developed by stylistics and the linguistically grounded parts of poetics and turn to the work of inference construction. The skill involved in this sort of project rests in determining whether a line of reasoning is of sufficient general interest. Here again we come up against one of the habitual working assumptions of the critic, that the most suitable phenomena for research are those which are unique or rare, hence the traditional emphasis on writers rather than readers, a bias which has to some degree been corrected in recent years. Moreover, it is assumed that the fascinating thing about writers is that they are unusual in some profound way, whereas the approach recommended here tends to assume that what really makes writers unusual is that they write so much. This might well itself become a matter for investigation, but it should not be allowed to overwhelm study of other features shared with non-writers, that is to say with readers. Hence we can conclude that, for example, inferences about the exposure of individual poets to individual ordering principles, in other words traditional influence studies, are not worth pursuing in themselves, but

would properly form an element in a larger project which attempted to widen the data-base available for psychological speculation, and one way of ensuring that an inferential research project of this type is not wasted effort is to return to the principle described above, that literary data is typically an element in a commonly occurring behavior.

An example may make this clearer. Let us say that I decide to study the psychology of human judgment, because literary texts abounding in all sorts of judgments are plentiful. After preparing a theoretical framework to enable me to categorize, quantify, and discuss various sorts of judgments, no mean feat as I have indicated earlier, I turn to the material at hand. Do I then confine my research to one judgment, found in a poem say, or to one author's judgments? Obviously not, since, firstly, it is a working principle that literary material is only an element in a larger phenomenon, and, secondly, discussion of an individual psychology alone is unlikely to produce reliable and general hypotheses. Therefore, although I might indeed study individual judgments, and the careers of authors, the inferences made at this level will constitute minor, ancillary, work leading up to larger level inferences. At this point the data attitude and the current of population thought join to force yet another novelty on the literary researcher, the principle of quantitative evidence. Literary argument is normally essentialist in its assumptions, that is to say that it regards selected, salient, evidence as sufficient and conclusive to support a thesis, and the canons of rhetorical elegance in our journals are built around this principle. Contrary evidence, on the other hand, is excluded (in the hope that it will escape the attention of opponents). Moreover, the range of cases, typically individual authors, is usually small. To achieve any degree of reliability, however, an epidemiological, inferential, study would require large numbers of examples. At present we have no way of making such a presentation sit prettily upon the page. Given that this extensive epidemiological study is in hand, what is it, psychologically, that is under consideration? At this point we should recall that in terms of Sperber's theory the mind may be seen as "susceptible" to culture, and that the student of cultural representations is therefore more or less indirectly studying the susceptibilities or insusceptibilities of the mind. Clearly, this applies most strongly to readers, and we can reasonably ask what evolved feature of the mind, operating in specified environmental conditions, was susceptible to this cultural representation, this formal property. Let us presume, for example, that, as I think is in fact the case, judgment styles vary across a historical period. We can then ask "Why this style at time A, but that style at time B?". The same approach can also be used with regard to a single author, regarding the author as susceptible to their own production. Briefly then, cultural objects can be regarded as evidence of preferences, both authorial and readerly, and the task of the researcher will be to relate these preferences and the environment in which they were manifested to what is known of the evolved modular structure of the mind and in the hope that this knowledge may be extended. No assumption need be made about the adaptiveness of either producing or hosting a particular representation, though this question is unlikely to be irrelevant in many cases, and, of course, for a great number of representations we may need to

explain their prevalence by the pragmatic power they give to those who hold them, or to those who force or persuade others to hold them.

The Darwinian Heritage

The importance of Darwin for students of culture is, principally, that the theory of evolution supports physicalism and opens the way for a powerful anti-dualist psychology. The theorization of culture which takes place under this aegis can reject criticism, the dominant mode of discourse in departments of literature. Further, it regards cultural materials, whether they are books or brain states, as data to be incorporated into a causal model of human activity through a physicalist psychology and a physicalist ontology. The most important general consequence of this theoretical orientation is that unlike criticism, which is an autonomous activity using other fields but not requiring reciprocal relationships with them, this approach demands integration. An integrated causal model of cultural study regards that study as deriving its importance from its contributory relationships to other fields, principally psychology. Interpretation and explanation, a traditional and hitherto apparently self-sufficing activity, is seen as subordinate to these relations.

The studies taking place within this framework would be in many ways familiar, both in their use of detailed history and in their use of fine-grained stylistic analysis. Where they would not be so, where the theory breaks decisively with the critical stance, is in the rejection of the suggestion that literature, or to use the current substitute term, textuality, is a transcendent category. On this view a poem, a novel, a play, a sentence, a phrase, or any cultural object, is a physical object with consequences on the human brain. Since these representations cannot compete with those generated by science in allowing us to understand what they represent, the only reason for studying such cultural objects within a university is that they shed light on the psychologies that generate, use and host them, and on the history of those activities.

Most importantly, no attempt is made to intervene directly in the public debate over the ideologico-moral implications of cultural objects. Just as there is no place in zoology for the qualitative grading of organisms, there should be none in a naturalized study of cultural objects, where any representation is of potential interest as a topic of study. Equally, the criteria by which the importance of a topic is determined are revised and rendered dependent on the concepts arising from that study, rather than some ill-defined sense of social prestige. Currently, to work on a minor author is considered somewhat shameful, and scholars are still, despite recent attempts to broaden the scope, concentrated around a few big names, with researchers on the periphery trying to make their own chosen authors into bigger names. If biological research were run on similar lines we should have a plethora of studies of lions, birds of paradise, and alligators, but very few of naked mole rats or bacteria, and this would entail, as its analogue does in literature, an immense loss of understanding. Naked mole rats and botulism are not intrinsically worth comprehension; indeed it is not clear what such worth might be. However, detailed knowledge may have considerable pragmatic utility, but because such examples enable us to develop a detailed causal account of the overall pattern of organic evolution. Similarly, marginal or despised cultural representations may, when placed into an appropriate theoretical

context, illuminate general psychological principles as well or better than apparently central texts of high status. Nevertheless, it is far from certain that a study of cultural materials revised in his name would reconcile Darwin to Shakespeare, but at least, if the plays themselves fail Hume's rigorous tests, thought about Shakespeare, when put into an ancillary relationship to history and evolutionary psychology, would be sufficiently theoretically integrated to generate "abstract reasoning concerning quantity and number" and "experimental reasoning concerning matter of fact and existence". It might then be as teachable and rewarding to study as today it is otherwise.

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