

# A GENERALIZED CONCEPTION OF TEXT APPLIED TO BOTH SCIENTIFIC AND RELIGIOUS OBJECTS

by *Mary Gerhart and Allan Melvin Russell*

*Abstract.* The idea of a text is reviewed and reconstructed to facilitate the application of concepts of interpretation to the objects analyzed in the natural sciences, as well as to objects analyzed in religion and literature. Four criteria—readability, formality, material transcendence, and retrievability—are proposed as the basis for a generalized conception of text. Objects in both religion and science, not previously thought to be texts, are shown to be included in the new definition and therefore to be potential subjects of developing methods of interpretation.

*Keywords:* data as text; epistemology; interpretation; nonlinguistic texts; objects in science and religion; text.

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In our book on metaphor we developed the idea of metaphoric process as the distortion of a field of meanings and argued that this process could account for the creation of understanding in both science and religion (Gerhart & Russell 1984). In this paper we shift our attention from the processes of coming to know to the objects of study in science and religion. In particular, we develop the idea of a text to a sufficiently high level of generalization that many of the objects of study in science and religion can be seen to be epistemologically the same.<sup>1</sup>

Recent years have seen an increased interest in processes of interpretation, especially in the fields of religious hermeneutics and literary criticism. Interpretation is of no less interest in the natural sciences. However, much of the excitement generated by issues of interpretation in the humanities has been reduced to debates regarding the nature of texts. If the natural sciences are to be included in the development of modern interpretation theory, the debates about texts must be carried across the disciplinary "lines." Accordingly, we must find a way of understanding the natural sciences as being concerned with texts, in effect resurrecting the medieval idea of "The Book of Nature."<sup>2</sup>

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The process of interpretation, so central in the humanities because of the ubiquitousness of written texts, may not be so obvious in the natural sciences, where texts are generally understood to refer only to scientific writings rarely subject to wide varieties of interpretation. However, interpretation is central to the problem of rendering observations and data meaningful, and this process has been one of concern to historians and philosophers of science as well as to practicing scientists themselves. When Galileo Galilei turned a telescope on the heavens, he saw images that required interpretation. He understood the image of Venus as revealing phases of the planet similar to the phases of the Moon, and he interpreted the bright dots near Jupiter as satellites of that planet.

Historically of still greater importance are the early interpretations of observational data on the positions of the planets. The data consisted of line-of-sight directions to planets at particular times—there were no direct data on the planets' distances from the Earth. These positional data were interpreted correctly but differently by Ptolemy, Copernicus, and Tycho Brahe: Ptolemy had the Sun and all the planets revolving around the Earth; Copernicus had the Earth and planets revolving around the Sun; and Brahe (in a late attempt at a compromise) had the Sun—circled by all the planets except the Earth—revolving around the Earth. Telescopic observations such as those by Galileo as well as dynamical theory were required before the Copernican schema could be accepted on grounds other than aesthetic (simplicity, symmetry, etc.).

Data of instrumentation must be interpreted in the light of particular theoretical understandings before they can be considered intelligible, a conclusion even casual observations in a high-energy particle laboratory will confirm. Of particular interest to us is the question, can interpretation in the natural sciences, on the one hand, and in the humanities, on the other, be understood to be equivalent epistemological processes? This first question, we believe, will be clarified by asking a second question, are the objects of study in each case epistemologically the same? Our method for addressing this second question is to reconsider what constitutes a text for interpretation in either the humanities—specifically religious studies—or in the natural sciences.

Ask scholars of classical religions what it is that they interpret, and the response is likely to be, "We interpret texts." In religion, the idea of interpretation is linked to texts, either directly or indirectly: only when we try to extend the notion of interpretation to text-marginal phenomena (such as oral tradition) do we become aware of the limit of the concept of text.

Ask the same question of a scientist and the response is likely to be, "What is to be interpreted are the data." The concept of text does not

appear to play a major role, if indeed it plays any role other than mere communication, in scientific research.

We wish to dispel the naive expectation that the central objects of study—texts in religion and data in science—are conceptually different entities. Rather than redefining data and claiming that texts constitute the exclusive data of religion, we find it more profitable to define text in such a way as to include the central objects of study in science.

#### A GENERALIZED CONCEPTION OF TEXT

Under the heading *text* in any general reference book of quotations or the *Oxford English Dictionary*, the greatest number of citations is to the Bible and to other specific written works. Only with the employment of nineteenth-century hermeneutics does the term acquire a level of generality. In the words of Friedrich Schleiermacher and Wilhelm Dilthey, *text* begins to refer to one of the elements in the process of interpretation. Nevertheless, the term has tended to preserve its original referent—namely, books—and is generally understood as denoting a relevant object of study only in the humanities and social sciences. If we are to make texts the central objects of study in the natural, as well as the human sciences, we must expand the class of objects to which the term can be applied and see what such an expansion can accomplish.

Most scholarly work on texts fails to deal specifically with what is to be taken as a text. This failure may be due to a naive assumption that everyone knows what a text is, an assumption particularly easy to embrace in academic fields overflowing with manuscripts. Being unwilling ourselves to take the nature of text for granted, we will begin by giving detailed criteria for what we will be willing to call a text.

We give the name *text* to some other objects to which critical interpretation can also be applied, thereby enlarging the concept of text not only beyond sacred text and literary text but also beyond written text to include objects that do not bear any apparent relation to language. We say that for an object to be a text it must possess the following four characteristics: readability, formality, material transcendence, and retrievability.

We begin by exploring each of the four characteristics of “textness” and examining, in particular, some of the objects we will call texts, in the natural sciences and in religion.

*Readability.* Anything we call a text must, in some sense, be readable. What do we mean by reading? This question can be addressed in a limited way without a full-fledged development of the concept of interpretation. Consider the following example: a student in a begin-

ning foreign language class is asked to read a French text in French. The passage is read aloud with proper pronunciation and the student, asked to give an account in English of what has been read, is unable to say what the French text is about. Has the student read the text? The answer is yes—but in a limited sense. Charles C. Walcutt distinguished three meanings of the word *reading*, which he described as *Reading*<sub>1</sub>, *Reading*<sub>2</sub>, and *Reading*<sub>3</sub>.

*Reading*<sub>1</sub> is decoding the printed visual symbol into a spoken sound, which it designates. *Reading*<sub>1</sub>, in other words, is turning writing into language. Language, as all the linguistic experts assure us, is spoken sound. Writing is a visual symbolization of those sounds. Reading converts writing into language. The definition holds whether or not the spoken sound is understood. . . . *Reading*<sub>2</sub> is . . . not really reading at all. It is understanding language. . . . It is the element of communication that is the goal of any reading instruction. . . . *Reading*<sub>3</sub> is hardest to define, but essential to our use of the word. On a higher level, reading takes us into a world of art and intellect . . . [and] permits the kind of study, elaboration, and accuracy that probably could not be sustained with only a spoken language (Walcutt 1971, xii-xiii).<sup>3</sup>

We might wish, right at the outset, to require of a text that it can be read in the sense of *R*<sub>2</sub> and *R*<sub>3</sub>, and not only *R*<sub>1</sub>. However, there is good reason to allow any one of Walcutt's three senses of reading to fulfill the readability criterion for our purpose.

*R*<sub>1</sub> applies to writing that is only marginally intelligible, such as disputed passages in the Bible or in William Shakespeare. In a lighter vein, the first stanza of Lewis Carroll's *Jabberwok* will serve as an example:

'Twas brillig, and the slithy toves  
Did gyre and gimble in the wabe:  
All mimsy were the borogoves,  
And the mome raths outgrabe (Carroll 1965, 18-19).

Are we to take such an object for a text? We have no difficulty in reciting the stanza—it gives the appearance of being in English and even sounds like English. However, as competent readers of English, we are able to call its meaningfulness into question and can assert that there is no literal meaning to the poem although, as a treasured part of literature, it survives as a wonderful parody of English style and syntax. By permitting *R*<sub>1</sub> to suffice for readability, we can accept *Jabberwok* as a text despite its lack of literal meaning and consider it an appropriate object for interpretation. Whether *Jabberwok* will meet our other criteria remains to be seen.

One can imagine the existence of an object that *might* be read and that is, therefore, *potentially* a text. We want to include such cases even though they range from examples that have proven sound (e.g., the hieroglyphic figures that comprise the texts of ancient Egypt) to those

that are doubtful in the extreme (e.g., the planetary and stellar configurations of astrology). It appears, therefore, that our criterion of readability should involve any of Walcutt's three senses of the word *read*, and we will leave the question of understanding to be raised at the level of the critical evaluation of interpretations.

Distinctions among the three meanings of the word *read* have a parallel in the natural sciences, in the data of instrumentation which we wish to include in our world of texts. In the early stages of the investigation of physical phenomena it is not unusual to be able to do no more than to express experimental data in some regular mathematical form: J. R. Rydberg's formula for the frequencies of the spectral lines of hydrogen is an example:

$$f = R(m^{-2} - n^{-2}).$$

Even though Rydberg did not understand spectral phenomena—they did not at the time fit into any existing theoretical scheme—he was able to express the observed data in concise mathematical form.

This state of affairs can be understood to correspond to *Reading<sub>1</sub>*, in which language can be articulated without understanding meaning. Later developments may lead to an understanding: Niels Bohr's theory of the hydrogen atom would be the corresponding example. The same text (the spectral lines) can, within the framework of Bohr's theory, be read with understanding (*Reading<sub>2</sub>*)—with an interpretation—because the text refers to a physical theory, thus making it possible to relate the phenomena of the spectral lines to other physical phenomena. One can go further and consider *Reading<sub>3</sub>*, which Walcutt called "hardest to define," as the level achieved when spectral lines are understood within the framework of a comprehensive theory such as quantum mechanics.

As an example in religion of the application of the readability criterion, we might take a Jewish cemetery. Corresponding to *Reading<sub>1</sub>* is the ability to identify certain symbols—the Minorah, tree of life, flowers, and (Hebrew) characters. *Reading<sub>2</sub>* would include an understanding of the symbols and inscriptions in relation to death. *Reading<sub>3</sub>* would relate Jewish funerary art to the transition from ancient Israelite religion to Judaism when cemeteries were introduced and apocalypse was emphasized.

Until this point we have been examining candidates for inclusion as texts only on the basis of the readability criterion. Further criteria may yet require that some of these candidates be eliminated. Readability is a necessary but not sufficient condition for an object to be called a text.

*Formality.* In order to qualify as a text, an object must be the product of, or have been produced in accordance with, the rules and conventions of some formal system. It is clear that any sample of a

language will satisfy this criterion. It may not be obvious that a large variety of nonlinguistic objects meet it as well.

In an article entitled "Texts and Lumps," Richard Rorty examined characteristics of a literary object such as *The Turn of the Screw* or *Hamlet* and those of a scientific object, such as gold. He compared and contrasted the way a literary critic on the one hand and a chemist on the other might engage these objects. Rorty's objectives were not unlike our own. He characterized himself as a pragmatist who could, along with John Dewey, "see chemistry and literary criticism and paleontology and politics and philosophy all striding along together—equal comrades with diverse interests, distinguished *only* by these interests, not by cognitive status." Indeed Rorty came close to our approach in claiming that "most philosophical reflection about objectivity—most philosophy and epistemology of science—has concentrated on lumps. Most discussion of interpretation has concentrated on texts. A lot of controversies about the objectivity of interpretation can, I think, be smoothed out by insisting, as far as possible on the text-lump parallelism" (Rorty 1985, 7-8). However, Rorty, along with many others, took texts as given, as not in need of definition or categorical analysis, and so he concentrated on a parallel between a natural "given" (the lump) and a human product (the text) thereby advancing what appears to us to be a category mistake, to use Gilbert Ryle's apt expression.

Ruth Anna Putnam in a reply to Rorty titled "Poets, Scientists, and Critics," showed that she was aware of this difficulty. However, her understanding of texts in science is not the same as ours: "Both poets and scientists produce texts, and the texts they produce are *about* 'lumps.' But scientists produce texts *only incidentally*; qua scientists they investigate lumps: they transform lumps into objects of knowledge" (Putnam 1985, 11, emphasis ours).

Texts that we recognize in science—we will be using the Joseph von Fraunhofer lines in the Sun's spectrum as an example—are not at all incidental to the scientist's investigation; they are its central objects. Moreover, these data-objects are produced in accordance with a formal system, a system of units and dimensions, of laws and relations. In the case of the spectral lines, we are referring not merely to the measured frequencies and intensities of the lines but also to the apparatus that is required for their detection. The role of apparatus as part of the formal system is especially evident in the more analytical sciences.

Rorty, in order to achieve his objective, should have alluded to gold not merely as a lump but as a set of characteristics, not merely as "insoluble in nitric acid" (for other objects have that characteristic) but as having a certain density, atomic weight, malleability, color, all of which relate to a formal system. Further, we cannot agree that "there's

an end on it," for there may still be isotopic differences to be discovered, questions of origins to be explored, and so on. Actually, we suspect that Rorty understands this full well, for he goes on to say that "the *causal* independence of the gold or the text from the inquiring chemist or critic does not mean that either can . . . perform the impossible feat of . . . seeing [the chosen object] as it is in itself . . ." (Rorty 1985, 7). Hence lumps cannot be "seen" in themselves but are seen always as part of a formal system, a point made by Norwood Russell Hanson some years ago (Hanson 1975).

*Material transcendence.* Consider the first line of Shakespeare's Sonnet 94, a poem which has attracted considerable critical attention:

They that have power to hurt and will do none,

No one would disagree with the proposition that this line of words is part of a text. This line would also have been part of a text if it had been handwritten in script, recorded in Morse code, or chiseled in granite. Texts have a property we will call material transcendence: they transcend the material that serves as their medium of expression.

This criterion should not be passed over lightly, for it represents a subtle but important aspect of textness that might be overlooked. Initially, the criterion of material transcendence might seem to contradict what will be our fourth criterion, retrievability; if a manuscript burns, is not the text lost? The loss of a manuscript tends to make us think that a text should have material immutability; change the material and one (necessarily) changes the text. However, any object that makes it possible to reproduce the words of a written text (a computer diskette, for example) must itself be considered a text. Hence a particular text is not necessarily associated with any *particular* object or set of objects that can express the text.

The requirement of material transcendence causes us to reject a number of objects that, on the basis of the readability criterion alone, might be considered to be texts. Think of an oil painting. Here we have a rich product of human creative activity from an area of work often considered parallel to writing. An oil painting would seem to have much to say to human beings. It is not uncommon to claim that one can "read" a painting (*Reading*<sub>3</sub> or *Reading*<sub>2</sub>). Can we not include it as a text for interpretation? The answer must be "no," because of the criterion of material transcendence. An oil painting is inextricably embodied in its original manifestation—much as a musical performance is: neither an oil painting nor a musical performance transcends the material that serves as its medium of expression.<sup>4</sup> To say that the oil painting can be photographed and that the resulting picture is a transcendent equiva-

lent of the painting in a new medium is as wrong as to claim that a recording of a musical performance is equivalent to the performance itself. Furthermore, a copier's rendition, no matter how accurate, cannot be considered equivalent to the artist's original.

The debate here centers on the notion of an original oil painting or a unique edifice. The notion of the original has always been special in art, but the modern capacity for reproduction has changed the conditions under which we interpret art. The French poet and philosopher Paul Valéry, writing before World War II, recognized this change when he wrote, ". . . the amazing growth of our techniques, the adaptability and precision they have attained, the ideas and habits they are creating, make it a certainty that profound changes are impending in the ancient craft of the Beautiful" (Valéry 1960, 1284). Post-World War II treatment of the phenomenon of artistic reproduction has been understandably negative in its appraisal. In his now classic essay "Art in an Age of Mechanical Reproduction," for example, Walter Benjamin asserted that the material of the original painting is lost in reproduction—his way of saying that the original painting is not materially transcendent. In losing the "'aura' of the original," painting, according to Benjamin, is cut off from its ritual connection to religion and becomes, instead, a matter of politics (Benjamin 1968, 217-24).

Reproduction, however, has a positive side as well. When art is being interpreted, for example, politically or theologically—the original is *not* essential, no matter how impressive, irreplaceable, and inspiring an original may be for immediate experience. We can say, therefore, that the modern capacity for reproduction *permits* artistic objects to be interpreted as well as enjoyed, adulated, contemplated, and so on. In other words, the loss of immediacy can be simultaneously a gain in understanding through interpretation. If this is the case, reproductions can be said to provide material transcendence, if not to the original work, at least to its significations.

*Retrievability.* Yet it is not the case that everything in the world that is readable, materially transcendent, and partakes of a formal system is a text. Indeed the establishment of material transcendence would seem to invoke a fourth requirement: if X is a text, X must be retrievable.

If a text is to be an object of interest to more than one discipline, a text must minimally possess the property of intersubjectivity; it must be possible for at least two persons to consider the same object. This requirement is met through the property of retrievability. Hereafter we will be unwilling to award the status of text to any object that is not retrievable. To illustrate the restrictiveness of this requirement, consider the following examples.



The song of the bard has a long tradition in literature. However, for our purposes, a song (or spoken story) cannot be considered a text. The verbal objects of spoken discourse have a transitory quality that prohibits their being scrutinized, analyzed, and otherwise subjected to the varieties of interpretation that can be brought to bear on an object that can be viewed and reviewed (both figuratively and literally).<sup>5</sup>

We realize that in requiring retrievability we will not be including the primary subject of linguistics—the spoken language. Whether our efforts offer any theoretical assistance to those who are concerned with the interpretation of exchanges of information in cultures that do not possess a written language will depend on the extent to which our conception of text can be applied to signs and symbols.

Another effect of the imposition of the criterion of retrievability is the exclusion of the realm of private experience that may be epitomized by the dream. How can one of the most celebrated objects for interpretation of the past hundred years not be included as a text? Let us examine the case of the dream more closely.

When Sigmund Freud spoke of the interpretation of a dream, just what was the object of his attention? In the case of his interpretation of one of his own dreams (some of his most detailed examples), it seems fair to allow that he was attending to a dream. Yet suppose that we had wished to question some aspect of one of Freud's dreams while he was alive. We would have had to take his *statement about the dream* as the basis for further analysis, for the dream itself lacks the intersubjective quality that retrievability demands.<sup>6</sup> However, the retrieval of an experience by means of memory will not be considered to meet our standards: human memory is not sufficiently reliable. The same conclusion must be drawn for all of the literary objects that we remember. The poem that resides only in memory cannot be considered, by our standards, to be a text.

It might seem to be the case that there is a point at which dreams become texts. Freud's *Interpretation of Dreams* includes long paragraphs of accounts, presumably verbatim, of dreams of his patients. Here, however, we have found the text but lost the dream, for while we can take the preserved account as retrievable, the account is not a reproduction of the dream itself. We conclude that dreams and similar mental activity cannot be considered texts.

#### THE APPLICATION OF THE CRITERIA

What are the gains and losses engendered by the application of our four criteria? First, text is not restricted to what is conventionally considered to be written language: instrumental data of any kind can be considered text, provided they are readable, related to a formal

system, and are materially transcendent and retrievable. For example, the readings of a thermometer, where suitably recorded, would qualify as a text, although simple visual observations of the thermometer would not. A recording of a performance of a symphony would qualify, as would the printed music that formed the basis of a performance. A performance itself, since not retrievable, would not be considered a text: a recording does not constitute a retrieval of a performance itself but only of limited aspects of a performance. A musical score from which a performance is read, however, is a text. The staves, lines, and dots of musical notation can be considered to comprise a text because they meet the criterion of retrievability as well as readability and formality. Do they also meet the criterion of material transcendence? Although not as clear a case as is a written text, we must surely accept a musical manuscript as a text because any description of a score that allows the score to be reproduced must be considered *equivalent* in all respects to the score itself.

What of texts in the natural sciences? Let us turn now to the example of spectral lines of hydrogen in the Sun. The spectrum of the Sun has been known, since the middle of the eighteenth century, to consist of a rainbow-like continuous spectrum on which are superimposed a myriad of "dark lines," very narrow gaps in the continuous shift of color from deep red through yellow and green to the darkest blue. The dark lines are understood to arise from the absorption, by elements in the Sun's "atmosphere," of the characteristic lines that, in the laboratory, would comprise the spectral lines of these same elements. The dark lines in the Sun's spectrum (or the spectrum of any star) form the basis for determining the chemical composition of the atmosphere of the Sun (or the star). All observers anywhere in the world, if suitably equipped and instructed, can see these lines and will obtain the same wavelengths if they choose to measure them. The lines satisfy our criterion of retrievability. We argue that these spectral lines are a text and that they satisfy all of the other requirements for text in the same way that Shakespeare's Sonnet 94 satisfies all the requirements. The lines are readable since by means of them we can determine the composition of a star. They are part of a formal system of units and dimensions to which their frequencies refer. Finally, they are materially transcendent since they are manifested in any appropriate arrangement of equipment anywhere in the world at any time. Unlike the case of the oil painting, the spectral lines do not lose material transcendence on the grounds of possessing an aura of originality.

The natural sciences have made much of the property of retrievability, at least in the past three hundred years. The idea that any scientist, at any time in any laboratory in any part of the world, can replicate the

observations of another has formed the basis of what is called scientific objectivity. Yet now we find that the concept of text, as we have structured it, is just as objective (intersubjective) as any scientific observation, and here lies the integrative aspect of our approach to texts.

It might appear as though our broadened definition of text, while making it possible to include the natural sciences within the realm of critical interpretation, leaves traditional hermeneutic disciplines unchanged. However, that is not the case. We find, rather, that we have enlarged the class of objects to be called texts in religious studies as well.

In religious understanding the question of text arises out of different issues than it does in science. The existence of written texts as one source of religious reflection insures some commonsense understanding of the phenomenon of texts. This very familiarity poses a problem when texts, either explicitly or implicitly, become exclusive or unreflective objects for religious understanding. At issue is whether elements of religion other than religious texts (conventionally understood)—for example, symbols, rituals, and persons—can be considered to be texts.

Before we proceed, however, we must ask whether the idea of text is a stable notion in the humanities. Any exploration of the concept of text must take into account thirty years of change in our ideas of what a literary text is. Whereas the traditional understanding presumed a "stable identity and its enduring power within a continuous cultural tradition" (Miller 1985, xii), the contemporary understanding emphasizes the dependence of the text's identity on different historical and cultural contexts, the mutability of the languages which texts employ, and the strategies by which texts may be seen to deconstruct as well as support the readings they encourage.<sup>7</sup> With these new emphases has come a heightened sense of the interdependence of text and the act of reading—so heightened in fact as almost to preclude the possibility of investigating the phenomenon of text alone. Reading *Is There A Text in This Class?* by Stanley Fish (1980), for example, one is struck by the radical question of the existence of texts. Although such radical positions as Fish's have been useful in demystifying traditional beliefs about texts, a new critical consensus does seem to be developing within the humanities and social sciences, a consensus that affirms texts as intrinsically related to but also different from interpretation. Having retrieved the concept of (written) text from what seemed almost to be its disappearance in the interpretive process, we are now able to survey the objects, the referents of religious experience, which can be understood to be texts.

The referent of religious experience, in itself, does not seem to qualify as text because it is not retrievable and cannot be read. Regardless of which conception we take to be central to religious under-

standing—Mircea Eliade's "dialectic of the sacred and the profane," Paul Tillich's "pursuit of an ultimate concern," Rosemary Ruether's "ideal concept of God/ess," Alfred North Whitehead's "process God," Karl Rahner's "hearing the incommensurable," David Tracy's "disclosure of the limit-character of experience," Rudolf Otto's "fear of and fascination with the numinous," or the Buddhist "repose in Nirvana"—we are faced with the same problem. To take this position, however, is to forget that the conceptions are not so much conceptions of the sacred, the holy, the unknown as they are conceptions of the *manifestations* and *proclamations* of the referent of religious experience. Through manifestations, articulations, and representations the referent of religious experience *can* be related to text. Paul Ricoeur referred to such manifestations of the sacred and distinguished them from the sacred itself as follows: "[A]lthough we cannot directly describe the numinous element [i.e., the sacred] as such, we can at least describe how it manifests itself. . . . [A] phenomenology of the sacred is possible because these manifestations have a form, a structure, an articulation" (Ricoeur 1974, 14). In this sense the objects of religious understanding are, like the data of scientific understanding, not understandable in themselves: both presume the mediation of a formal system which enables objects and data to be made appropriately intelligible for the inquiry.

Ricoeur observed that natural symbols, the "elements" of nature—sky, earth, air, water, fire—play an extensive albeit controversial role in the manifestation of the sacred in human experience. On one level, the sacred power of nature is located in its being threatening and uncertain: "The sacred universe, after all, is a universe which emerges out of chaos and which may at any instant return to it." At the same time, the elements may function as symbols, that is, as a part of a formal system which makes possible a second-level meaning through and beyond the literal level. For example, the major religious function of water as a symbol is "to evoke the universal source of potentialities from wherein existence emerges. . . ." Water symbolism is central to many rituals—rituals of immersion, ablution, libation, baptism, and death. In the light of natural symbols, life is understood as a "total and diffuse sacrality which may be seen in the cosmic rhythms, in the return of vegetation, [in fertility and birth,] and in the alternation of life and death" (Ricoeur 1974, 17-18).

As a manifestation of the sacred—a hierophany—can a natural symbol qualify as a text? Ricoeur defined what it means to "manifest" the sacred: "the object (e.g., a tree, a rock) becomes something other than itself while still remaining itself. . . . *It becomes* super-efficacious while still remaining a part of common reality" (Ricoeur 1974, 14-15), a characteristic approximating material transcendence.

On the other hand, an appearance of the sacred which is limited to one or another *particular* object, for example, the Oracle at Delphi or the tabernacle of the Shekinah, lacks material transcendence. (Singular objects such as these tend to be regarded as themselves sacred rather than as being manifestations of the sacred.) By contrast, the Christian Eucharist is *any* bread and wine which has been consecrated. General objects such as these, dependent for their sacrality upon an event, in this case the spoken word, exhibit material transcendence.

Are symbols readable? To the degree that they lend themselves to intersubjective understanding, we can say that symbols are readable. Multiple, even conflicting, readings do not compromise readability since reading does not imply that every reader will read in the same way. Yet if this is so, how can attempts to read the livers of animals (hepatoscopy), the flights of birds (augury), or the flesh of human beings (trial by ordeal) be distinguished from reading a symbol? Admitting these marginal cases as texts readable at  $R_1$  does not preclude rejecting flawed interpretations which have resulted from claiming a higher level of readability.

Because of its double—some would say crossed or conflicting—referent, a natural symbol “calls for” a reading at Walcutt’s third level, the level which leads to “a world of art and intellect . . . [and] permits the kind of study, elaboration, and accuracy that probably could not be sustained with only a spoken language” (Walcutt 1971, xiii). At this level, the meaning and truth of a religious interpretation and a formal system of religious concepts come into play.

Are natural symbols universally retrievable? Unlike unique manifestations of the sacred, such as the burning bush in which Moses encountered Yahweh, natural symbols are accessible to all. Recorded symbols, of course, are also retrievable. Moreover, the process by which “natural” objects become and remain symbols is similar to the process by which data in science become and remain data.

To the degree, then, that they are materially transcendent, retrievable, readable, and part of a formal system, natural symbols can be regarded as texts.

Manufactured as well as natural objects can be elements in a hierophany of the sacred. Figures (such as the circle, square, cross, labyrinth, and mandala) and structures (such as thresholds, gates, bridges, pathways, ladders, and ropes) partition profane or everyday existence into sacred time and space. We may say that this manner of “inscribing” the sacred by means of certain objects is to ask for them to be “read” semiotically, that is, in a language of figures.

These objects of religion, as well as more particularized ones such as mandalas, crucifixes, rings, and shepherd’s crooks, are all retrievable in the sense that it is possible for at least two persons to consider the

same objects even at different times. The objects are materially transcendent insofar as, like natural symbols, their sacrality is not limited to any one particular instance: a religious object is more obviously a text when its sacrality depends more on the *kind* of object it is than on its being a unique occasion of a sacred manifestation. Sacred objects are readable by virtue of their belonging to a network of meaningful signs, that is, a formal system.

Just as the figure of the threshold sets off sacred from profane space, a ritual distinguishes sacred from profane time: "Rites practically organize the alternation of strong times and weak times, the rhythm of eating and drinking, of love and work, of the time for debate and the time of a festival." Whether understood negatively as "magical manipulations" or demonstrations of occult powers, or positively as any kind of human behavior which confers order and value on the world, ritual has come to be recognized as important human activity. "[T]o every manifestation [of the sacred] there corresponds a manner of being-in-the-world" (Ricoeur 1974, 16).

Are rituals texts? Different rituals or the same ritual performed at different times or places can have the same referent, the way the word *tree* printed in different ways or at different times or places can have the same referent. Rituals are, therefore, materially transcendent with respect to their referents. The various referents of ritual events are often related in a formal system, for example, in a literary or sacramental system. A classic example of the relation of literature to ritual is the Babylonian *Enuma elish*, which reenacted the creation of the world. Other examples include the Passover ritual which reconfirms the Covenant in the flight of the Hebrews from Egypt, the Eucharist which reenacts the death and resurrection of the Christ, and Agni, the Vedic ritual of the fire altar.<sup>8</sup> Rituals as events can also be read, as they frequently are read, for example, by ethologists. As events, however, rituals are not texts because they are not retrievable. Reproductions and records of rituals (in liturgical formulas, rubrics, or transcribed myths) can, of course, be expected to fulfill all four criteria.

In addition to scriptures, natural symbols, figures, and rituals, religion includes persons as the locus of the sacred. In his study of saints as paradigmatic figures in the history of Christianity—figures such as martyrs, ascetics, pilgrims, warriors, mystics, theologians, artists, humanists, activists, and outsiders—Lawrence Cunningham (1983) draws upon David Tracy's notion of the classic. According to Tracy, religious classics "involve a claim to truth as the event of a disclosure-concealment of the whole of reality *by the power of the whole*—as, in some sense, a radical and finally gracious mystery" (Tracy 1981, 163). In the sense of their being religious classics, are persons "texts"? At first glance, it would seem as though persons in themselves are not retrieva-

ble, nor materially transcendent. Moreover, they seem only partially readable (we may read their temperature or blood count, for example) or at best trivially readable (recall Hamlet's objection to Rosencrantz's and Guildenstern's attempt to read him: "Do you think I am easier to play on than a pipe? . . . You would play upon me; you would seem to know my stops" [Hamlet III, ii]).

Nevertheless, Cunningham is not speaking of persons as individuals (except insofar as an individual might exemplify a particular type). Instead he is describing composite persons—"persons" built out of legends, paintings, sculptures, decrees, historical records, music, and monuments. Classic persons might very well be understood in the traditional exegetical strategy of *typos*.<sup>9</sup> *Typos* constitutes a formal system that goes beyond the act of categorization in the sense that it generates and organizes similarities and differences and ultimately can be said to render relationships among individuals intelligible. Are classic persons in Cunningham's sense retrievable? Yes, insofar as our understanding of them is founded on retrievable objects (recorded legends, reproductions of paintings and sculptures, decrees and facsimiles). Do classic persons transcend their material form? Yet, they are materially transcendent in the sense that the figure does not depend upon any particular historical personal embodiment. Are classical persons readable? Yes, they are readable at all three of Walcutt's levels (Walcutt 1971, xii-xiii): at  $R_1$ , where an individual is merely recognized as a particular classic person, and at  $R_2$ , that is, at the level of being able to decipher the manifestations of personhood as distinct from the effects and institutions individual persons produce in the world. Even more importantly, classic persons are readable at the level of  $R_3$ , that is, at the level of our being able to elaborate, study, and understand systematically both the relations among all these types and to understand them *as religious*. So in the sense that Cunningham develops the notion of classic person, a classic person is a text.

#### TEXTS IN SCIENCE AND RELIGION

In the cases in which one encounters a written text, the questions that need to be addressed in coming to an answer to the question "Is this a text?" are so trivial they are rarely if ever asked. In the cases in which one encounters nonlinguistic objects of the kind we believe should be considered texts, the questions that need to be addressed are so varied that there appear at the moment to be no truly paradigmatic examples of nonlinguistic texts. Accordingly, in a paper of this kind and size, it is not possible to exhaust the nuances of the implications. We seem to have stepped from a framework where hardly a question was stirring to one where there can never be answers enough.

However, with an understanding of text that includes nonlinguistic objects such as the data of natural science and semiotic objects of religion, we are positioned to be able to initiate a discussion of the role of critical inquiry over a much broader range of academic research activities than was possible within the commonsense meaning of text. Our sense of the need for such a discussion stems from our conviction that many of the contrasts made historically between the sciences and the humanities are unfounded. The study of text, then, is more than the study of a new category: our interdisciplinary exploration is part of a revisionist epistemology. As such, it is an exploration of ways of knowing founded on the common ways that we come to know what we claim to know in both the humanities and the natural sciences.

#### NOTES

1. The argumentative form of this paper is the stipulative definition. We choose to call X a text if X possesses four specified characteristics. Most stipulative definitions *narrow* the range of application of a term, whereas ours enlarges the range. In either case the assertion of a new definition is justified only by what is achieved. Those who disagree with us, but share our objectives, are especially invited to challenge or alter the characteristics. Finally, we wish to point out that our use of the stipulative definition to enlarge the range of application of a concept is an example of the metaphoric process we elaborated in our book. Here we are taking the concept text, embedded firmly as it is in a written or literary field of meanings, and insisting (stipulating) that the concept text is also applicable to other objects (e.g., religious rituals and certain measurable physical quantities) themselves firmly embedded in their own fields. In so doing, we create a metaphor that distorts a world of meanings with the result that concepts, hitherto thought distant and distinct, are brought epistemologically together.

2. According to Ernst Curtius (1953, 324), "The founder of exact natural science gives the book metaphor a significant new turn. Galileo speaks of the great book of the universe, which lies forever before our eyes but which we cannot read if we have not learned the script in which it is written."

3. We have changed Walcutt's superscripts to subscripts, to conform to mathematical and scientific usage.

4. Our students found the case of a painting particularly vexing. They raised questions about other art objects, many of which we decided were texts (illustrations in a book or magazine, serigraphs, and etchings—unless individually wiped by the artist), and others we rejected as texts (water colors, collages, and sculpture—unless cast). Let us restate the problem with art in relation to our criteria for text. By defining text in such a way that it may be significant to the sciences and to the religions, some objects that are sometimes called texts in the humanities, such as original paintings and architectural monuments, are, in our theory, marginal phenomena not in themselves texts. We have found that literary-oriented scholars, on the other hand, tend to want to include as texts anything that can be read, which for them is equivalent to anything that "has meaning."

5. The complexity of the problem can be seen in the words of the classicist Albin Lesky (1966, 37); "Pure oral poetry, however, is never repeated twice in the same form. . . ." Then, in a footnote, he elaborated and qualified as follows: "The dictum of Sterling Dow . . . 'Verbatim oral transmission of a poem composed orally and not written down is unknown,' has been challenged recently by G. S. Kirk. . . . From observations of contemporary oral epic on its own ground he concluded that faithful transmission is possible."

6. Different theories yield different understandings of what a dream is, yet this diversity does not affect the claim that a dream is irretrievable. Jacques Derrida, for example, would deny the existence of an "original" experience of a dream. In "Freud and



the Scene of Writing," Derrida (1978, 211) wrote that "[t]he [dream] text is not conceivable in an originary . . . form of presence. The unconscious . . . is already a weave of pure traces, differences in which meaning and force are united. . . ." Alternatively, in Jungian oner analysis, individual dreams are instantiations of universal archetypes. Nevertheless, the claim regarding irretrievability holds, although in different ways, for both Derrida's and Carl Jung's understanding of dream. Nor does the issue of whether or not we are fooled by our dreams bear on their retrievability. Jacob's dream in Genesis and native American dreams are equally irretrievable as objects of faith or as objects of suspicion.

7. See, for example, Peter D. Miscall (1983) on the way Genesis subverts our choice between Abraham as "scoundrel or paragon"; see further his argument that such subversion of "determinate" readings is the proper work of the text.

8. Controversy over Frits Staal's recording and interpretation of the 1975 "performance" of the 3,000-year-old Vedic ritual illustrates the issue of the relationship between myth and ritual. In his two-volume study (which includes illustrations and two cassette tapes), Staal first claimed that the ritual is meaningless to those who perform it. Later he said that "its meaninglessness became patent and various rationalizations and explanations [the *Brāhmaṇas*—the oldest Vedic literature] were constructed" (Smith 1985, 140).

9. See, for example, Northrop Frye's (1981, 78-138) treatment of typology in the Hebrew and Christian scriptures. His project, more than his particular schema, is of relevance here. Of Frye's project, Ricoeur (1985, 178) commented, "Such typologies, to my mind, reflect a sustained familiarity with the singular works of our narrative tradition or traditions and constitute the *schematism* of narrative function, in the same way that the singular plots express the productive imagination at work at the concrete level of poetic composition."

#### REFERENCES

- Benjamin, Walter. 1968. "The Work of Art in the Age of Mechanical Reproduction." In *Illuminations*, 217-51. New York: Harcourt, Brace & World.
- Lewis, Carroll. 1965. *Through the Looking Glass*. New York: Random House.
- Cunningham, Lawrence. 1983. *The Catholic Heritage*. Riverside, N.J.: Crossroad.
- Curtius, Ernst Robert. 1953. *European Literature and the Latin Middle Ages*. New York: Pantheon.
- Derrida, Jacques. 1978. "Freud and the Scene of Writing." In *Writing and Difference*, 196-231. Chicago: Univ. of Chicago Press.
- Fish, Stanley. 1980. *Is There A Text In This Class? The Authority of Interpretive Communities*. Cambridge, Mass.: Harvard Univ. Press.
- Freud, Sigmund. 1965. *Interpretation of Dreams*. Trans. James Strachey. New York: Basic Books.
- Frye, Northrop. 1981. *The Great Code: The Bible and Literature*. New York: Harcourt, Brace Jovanovich.
- Gerhart, Mary and Allan Melvin Russell. 1984. *Metaphoric Process: The Creation of Scientific and Religious Understanding*. Fort Worth, Tex.: TCU Press.
- Hanson, Russell Norwood. 1972. *Patterns of Discovery*. Cambridge: Cambridge Univ. Press.
- Lesky, Albin. 1966. *A History of Greek Literature*. New York: Thomas Y. Crowell Co.
- Miller, Owen. 1985. Preface. In *Identity of the Literary Text*, ed. Mario J. Valdés and Owen Miller, vii-xxi. Toronto: Univ. of Toronto Press.
- Miscall, Peter D. 1983. *The Workings of Old Testament Narrative*. Philadelphia: Fortress Press.
- Putnam, Ruth Anna. 1985. "Poets, Scientists, and Critics." *New Literary History* 17:17-21.
- Ricoeur, Paul. 1974. "Manifestation and Proclamation." *The Journal of the Blaisdell Institute* 12:3-35.
- . 1985. "The Text as Dynamic Identity." In *Identity of the Literary Text*, ed. Mario J. Valdés and Owen Miller, 175-86. Toronto: Univ. of Toronto Press.
- Rorty, Richard. 1985. "Texts and Lumps." *New Literary History* 17:1-16.
- Smith, Brian K. 1985. "Vedic Fieldwork." *Religious Studies Review* 11:136-45.

- Staal, Frits et al. 1983. *Agni: The Vedic Ritual of the Fire Altar*. 3 vols. Berkeley, Calif.: Asian Humanities Press.
- Tracy, David. 1981. *The Analogical Imagination*. Riverside, N.J.: Crossroad.
- Valéry, Paul. 1964. "La Conquête de l'ubiquité." In *Pièces sur l'art, Oeuvres de Paul Valéry*, 2:1284-87. Paris: Librairie Gillimard.
- Walcutt, Charles C. 1971. Preface. In *The Written Word* by Sheridan Baker, Jacques Barzun, and I. A. Richards, xi-xiv. Rowley, Mass.: Newbury House.

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