Natural Sciences as Textual Interpretation: The Hermeneutics of the Natural Sign

James Franklin


Stable URL:
http://links.jstor.org/sici?sici=0031-8205%28198406%2944%3A4%3C509%3ANSATIT%3E2.0.CO%3B2-R

*Philosophy and Phenomenological Research* is currently published by International Phenomenological Society.

Your use of the JSTOR archive indicates your acceptance of JSTOR’s Terms and Conditions of Use, available at http://www.jstor.org/about/terms.html. JSTOR’s Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at http://www.jstor.org/journals/ips.html.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is an independent not-for-profit organization dedicated to creating and preserving a digital archive of scholarly journals. For more information regarding JSTOR, please contact support@jstor.org.
Natural Sciences as Textual Interpretation: The Hermeneutics of the Natural Sign

JAMES FRANKLIN
University of New South Wales

I

Some pieces of the world, such as the one that the reader is now perusing, are texts. The modern hermeneutical tradition of philosophy has adumbrated methods for interpreting these entities. "We mean by hermeneutics," says Ricoeur,¹ "the theory of rules that govern an exegesis, that is to say, an interpretation of a particular text or collection of signs susceptible of being considered as a text." The "susceptible" here hints at, or more accurately avoids hinting at, an operation of separating the world into texts and non-texts. The hermeneutical enterprise has typically concerned itself with objects that, even if no meaning has yet been attributed to them, are given to the subject as texts. But it would be unwise to take for granted the answer to the question, "Is this a text?" Whether a given object is indeed a "collection of signs susceptible of being considered as a text" is a matter at least prima facie needing an interpretative act for its determination; and if there is one point agreed on by everyone concerned with hermeneutics, it is the impossibility of assuming as immediately evident the answer to any question requiring interpretation.

Certainly there has been no lack of disagreement as to whether particular parts of the world should be regarded as texts or not. A good deal of the obscurity in the debate over the status of psychoanalysis as a science can be seen as stemming from indecision on the part of the founders of the discipline as to whether it was to be a natural or a human science. Although Freud's clinical practice was clearly hermeneutical,² he insisted

on modelling his theoretical schemas on the paradigms of the natural sciences of his day, especially the vitalistic, hydrodynamic paradigms then current in biology. It is perhaps his hermeneutical approach to actions, dreams, myths, and the other phenomena he investigated that has proved the more lasting.

But it is not only human actions and artifacts that have been regarded as texts. Augury reveals the possibility of seeing almost any happening as an appropriate object for interpretation. Theories of divination have preserved a certain ambiguity between regarding omens as natural signs or “shadows” cast by future events, and reading them (as the word “divination” suggests) as, literally, warnings written by some agent for the diviner’s enlightenment. In fact, there is a long, if now dormant, tradition that regards the entire world as a book written by God, by which His purposes are “manifest in the things that are.” Historically, the modern opinion that the world is not a book has no doubt come to be held on the grounds of the non-existence of the presumed Author. Yet it is doubtful if the principles of modern hermeneutics legitimate even the apparently minimal inference that what has no author is not susceptible of interpretation as a text. There are well-known caveats against assuming that a reconstruction of the author’s intentions is the proper aim of the interpreter’s quest. (Nor is this the aberration of some post-structuralist sect; in judicial interpretation courts have long held that evidence relative to the intentions of the legislators may not be used to determine the meaning of a law.) But these caveats imply that the text has an autonomy proper to itself. The extent of this autonomy may be disputed, but its very presence raises the possibility either that the existence of the author is not necessary at all, or at least that the assumption of his existence performs no theoretical function. If the author cannot intrude on the encounter between the reader and his text except via the text itself, then his existence, even if necessary from considerations of metaphysics, plays no role whatsoever in hermeneutics.

It is no part of my concern to arbitrate on these controversies, or even to provide principles for doing so. Rather I use these disputes simply to illuminate the fact that a decision on whether an object is a text requires an act of interpretation. Disagreements function in the same way as does an ambiguity or contradiction in a text, which brings to the fore the need for

---


4 Rom. 1:20.

principles applicable to the given text.

II

Freud’s eagerness to represent his activities as “genuinely scientific” is, of course, a reflection of the disposition of his age to regard Newtonian mechanics as the paradigm of true science and, in consequence, to see the human sciences as in some way inadequate in so far as they fell short of that ideal. In reaction to this prevailing climate of thought, the hermeneutical movement promoted methods of inquiry proper to the human sciences, which were capable of yielding valid results in those sciences without needing to appeal to methods or models proper to the natural sciences. The aim of this polemic was twofold. First, the human sciences would be justified as worthy bodies of knowledge — and that in their present form, not in some presumed future when there would be “sufficiently many facts and laws known to make history (say) truly scientific.” Second, within the human sciences themselves, investigators would be freed from the necessity of distorting their objects of study (and causing scandal to natural scientists) by inventing “explanatory” concepts modelled on those of natural science, such as psychic “energies” and economic “forces.” Now the logic of any attempt to rescue a favoured object A from the clutches of a disfavoured object B by emphasising the differences between them involves certain almost unavoidable dangers. The first is that in the interests of initial impact the resemblances between the two will be minimised; the second, that the disfavoured B will be assigned the role of Pharaoh in the Book of Exodus — that of a feared tyrant now thankfully escaped. Such a role, however understandable, will inevitably hinder inquiry into the correct status to be given to B in the light of its new-found independence from A. It is the contention of this article that a rightful concern to demonstrate the autonomy of the human sciences from the natural sciences has led to a lack of understanding of the parallels between the methodologies of the two, and a neglect of the fundamentally hermeneutical nature of the perceptual process underlying natural science. Indeed, it is the natural sciences whose autonomy is now under threat from the human sciences, rather than the reverse. And here I do not mean to reiterate the familiar observation that the results obtained from, the questions posed by, and the standards of logic and objectivity approved in natural science are influenced by the cultural milieu and historical understanding of its practitioners. Rather, the thesis here is that the activity of a perceiving subject confronting a world is so radically identical with the activity of an interpreter confronting a text that the natural sciences can give no account of their starting point without using the tools of hermeneutics.
“We live and move not in a sphere of ‘sensations’ but of objects presenting themselves to us, not in a sphere of ‘feelings’ but of value, meaning, and so on.” Dilthey here calls attention to the parallel between the interpretation of systems of signs as having meaning and the interpretation of sensory experience as representing physical objects. To substantiate the claim that at the basis of the natural sciences there is an intrinsically hermeneutical operation, this parallelism will need to be developed at some length. As was made clear in the first section, there is no reason a priori to reject a hermeneutical approach to perceptual experience simply on the grounds that it is a natural (causal) effect of the physical bodies perceived. Even if this were true without qualification — that is, even if we were to admit that perceptual experience is a “projection” of physical objects on some purely passive internal screen — a hermeneutical approach would be justified a posteriori, if it accounted for the distinctive features of the way in which perception proceeds in articulating an interpretation of its object.

It will be convenient to take as a first focus of discussion the “problem of perception.” Perceptual illusions, for example that of the bent oar (an oar partly in and partly out of the water appears bent at the water surface), serve the same purpose as Heidegger’s broken hammer or ambiguities in a text — they reveal that a hermeneutical act has taken place, and they exhibit the urgent need for canons of interpretation. Let us take a relatively unsophisticated account of the experience of stumbling upon perceptual illusion. The medieval scientific writer, Adelard of Bath, says:

If you see the form of a coctanus fig from afar, must it be a coctanus? But there are things which have the same form, but are different in substance. You go up to touch it; there are other bodies of the same softness. You apply the sense of smell. Still, it is possible that the smell has rubbed off by contact with figs.

The linear progression of successive hypotheses and corrections is no doubt contrived, but is no less effective for that. The critic versed in hermeneutics will have no difficulty in recognizing the interpretative process of the horizon of preunderstanding grappling with the unexpected. Realist philosophers have rarely been seriously disturbed by the existence of perceptual illusions, feeling they are exceptional, and in any case easily explained by some story about the structure of our sense organs or the properties of the medium through which the perceived objects acts on the sense organs. But neither is ambiguity typical; an interpreter at a mature stage of interpretation of, say, a didactic text, will rarely experience any

7 Adelard of Bath, De Eodem et Diverso, in Beiträge zur Geschichte der Philosophie des Mittelalters, Band IV, Heft 1 (1903), at p. 13.
ambiguity. This in no way implies, however, that ambiguity is trivial or peripheral. The occasional failure to be monosemantic, whether by accident or design, throws into relief the property of ordinary discourse of avoiding both ambiguity and meaninglessness - a property which would perhaps be overlooked otherwise. The pervasiveness of the interpretative act stands exposed, and a naive fundamentalism which denies its existence becomes impossible. Perceptual illusion performs the same function. Naive realisms appealing to an immediate grasp of the thing as it is (or even of some aspects of the thing as it is), without any interpretative act, become untenable. A text is not transparent to its interpretation. Neither is sensory experience simply something “through which” the physical world lies open to the gaze of the mind’s eye.

Once the act of interpretation has been brought into prominence, it will be clear how various well-known distortions of the hermeneutical process are recapitulated in the history of the philosophy of perception. Fundamentalism has already been mentioned. At an opposite extreme is the Protagorean doctrine that “man is the measure of all things,” that a reader of a text is not constrained in any way by either the intentions of the author or the conventional rules of the language in which the text is written. This view has appeared in biblical exegesis in the form of extreme metaphorical interpretations, as the opinion of late antiquity that the creation myth of Genesis is a parable of the relation of form and matter, or in some of the baroque allegories of the later medieval preachers. Since anyone with such an extreme solipsistic view with regard to perception would be unable to communicate with us, this position is unlikely to be found in the literature. There is nevertheless an opinion only slightly less extreme which does appear. The more sceptical of the demythologizers appeared to allow the interpreter to overthrow the evident intentions of the biblical authors, expressed in the scriptural texts, on almost all points, in order to accord with the historical perspective of the interpreter. A diagnosis of lack of openness to the text is indicated. The obtrusive presence of the interpreter in the foreground of such a picture masks almost completely the reality which the authors were struggling to reveal to us through their text; deprived of this reality, we are left only with the interpreter slotting portions of the text into pre-existing holes in his horizon. An isomorphic error concerning perception will leave only an idealist ego replacing an openness to the world revealed through perception with the play of forms on its own consciousness: “The mind knows all other things through knowing itself, for all forms inhere in it.”

---

8 J. Huizinga, The Waning of the Middle Ages (London: Arnold, 1924), chapter 15.
9 Condemned Propositions of 1277, no. 115, in Chartularium Universitatis Parisiensis,
denies that human actions are symbolic of anything other than themselves, such an extreme idealism “solves” the critical problem by simply denying its existence. Berkeleian idealism represents the logical conclusion of this chain of reasoning. Carnap’s Aufbau similarly hoped to dispense with the subject-matter presumed to lie behind the text, and also (unlike Berkeley) with the author. These interpretations remain in danger of being idiosyncratic and narcissistic to the point of making communication of themselves unintelligible. By its very refusal to compromise, however, radical idealism does point up a characteristic common to all interpretation: no proposed reading can establish itself beyond all possibility of challenge, no matter how completely it has satisfied all the demands so far placed on it. As Dilthey observed in the remark quoted above, the lived world is given as object, not as sensation. Nevertheless, it is a gift which can in the last resort be refused. “But the message did not benefit them, for it did not meet with faith in the hearers” (Heb. 4:2).

Having now seen how certain pathological strategies in hermeneutics are paralleled by equally perverse stances that have been adopted towards the problem of perception, we may reasonably hope that reputable hermeneutics will afford some clues towards a more nuanced approach to perception.

Despite the strictures above, Carnap’s mode of attack on the problem was not completely without value. It serves to remind us that even prior to any interpretation whatever, perception, like any text, is not a structureless chaos. It contains, for example, repetitions. If a native English speaker familiar with the Passion narrative hears this story read aloud in Latin, a language of which he has no knowledge, he will still be able to recognize a repetition of a symbol in the phrase, “Quod scripsi, scripsi.” A double occurrence of an infrequent symbol stands out, and will suggest the hypothesis that these symbols are Pilate’s utterance, “What I have written, I have written.” Courts have held it “a fundamental rule of construction that any document should be construed as far as possible so as to give the same meaning to the same words wherever they occur in that document.”10 The inference is not infallible, in view of the possibilities of homonyms, on the one hand, and of repetitions with no semantic significance (such as rhymes) on the other. Even so, cues of this kind do in general make a contribution to the total interpretation. Indeed, in degenerate cases, such as in the initial attempts to translate fragmentary texts of an ancient language which does not resemble any known language, and where even the genre of the texts is a matter of surmise, these cues may provide the only possible starting point. Unfortunately, whatever the

importance to be attached to these structural features of the text, they heavily underdetermine the total meaning of the text. Carnap’s attempts, therefore, to construct an interpretation, however minimal, of perception purely on the basis of structural regularities was doomed to failure. But the enterprise was superficially rather more plausible in the case of perception, because structural regularities occur in perception with a variety and frequency normally impossible in written or spoken text. A verbal text proceeds in general linearly, but perception integrates, while keeping distinct, many dimensions. The possibility is raised of correlations between them — for example between the visual and the tactual dimensions of experience. A series of repetitions in visual experience, accompanied by a simultaneous series of repetitions in tactual experience, is a structural feature of total experience which constrains any proposed interpretation. Prior to an interpretation incorporating these correlations, the visual appearance of a tree is not given as a rough-and-climbable, any more than the blue of the sky is given as a bowl. The two examples are distinguished by the possibility of tactual experience of the tree paralleling the visual and being integrated with it, and the impossibility of this in the case of the sky. The tree consequently takes on for consciousness the status of a full-bodied material object, generating the expectation of sides not yet perceived, but able to be seen and touched by a change in position of the observer. The sky raises no such expectations; its hypostatization is confined to poetry, myth, and children’s stories.

Stereoscopic pictures show that binocular vision possesses a modality which vision from a single eye does not have. This modality can be interpreted as depth in the field of vision, but to do so requires the application of a canon of exegesis extrinsic to the purely visual text. Depth in a visual field implies the possibility of the perceiver’s moving varying distances towards the object. The appropriate canon is one which integrates the expectation of this effect of movement with the modality of “depth” peculiar to the binocular experience, and so interprets “depth” as depth.

But visual-tactual correlations, though prominent, are in no way unique among the structural features of perception. In fact, since perception is given as a continuous process (in the mathematical sense, that is, infinitely divisible), in contrast to the discreteness of verbal texts (which proceed via finite rule-recursion on a discrete set of atomic symbols), the full richness of continuous structure is available to guide perception. The detailed studies of Piaget on children under one year old reveal that continuities and discontinuities in perception are the overwhelmingly predominant element in the cues necessary for the preliminary stages of perceptual interpretation, in which the child first separates the self-subject from
the physical world-object, and distinguishes the ambient world into persisting substances. Typical of Piaget’s observations is the following:

Laurent [at eleven months] is seated between two cushions A and B. I hide the watch alternately under each; Laurent constantly searches for the object where it has just disappeared, that is sometimes in A, sometimes in B.  

(At nine months he was unable to do this consistently; at even younger stages he did not search for any object which was hidden from his sight). The child, having recently reached the stage of attributing to certain perceptual objects the status of persisting substances, has done so on the basis of the past continuous behaviour by these objects. The child’s behaviour shows his expectation of smooth continuous motion by the watch, overruling the immediate perceptual demand of the discontinuity occurring in perception as the watch disappears. The point to emphasise is that continuities and discontinuities in perception, like correlations, symmetries, and repetitions, are structural features of a text which, though they underdetermine its meaning, must be accorded a central role in any adequate interpretation. The limitations to their effectiveness are clear, however, from their inability to exclude even an idealist or sense-datum interpretation of perceptual objects as things-in-themselves.

A fuller investigation of issues involved in the hermeneutics of perception would be desirable, but is beyond the scope of this article. One central desideratum would be to discover the principles which determine the totality of interpretation, other than the collation of structural features internal to the perceptual given. It would be necessary to determine whether these principles are in some way innate (as at least the figure-ground structure of perception appears to be), in accordance with reminiscence theories. In fact, it is the need for principles of interpretation that would allow sensory interpretation to begin which gives reminiscence theories what plausibility they have. This holds as much for modern evolutionary versions which rely on genetically induced mechanisms selected by the history of the species as it does for the original Platonic theory of individual reminiscence. But interpretations imposed on us by force of physiology pose as acute a problem with respect to their validity as do those imposed on news agencies by military force. This consideration leads on to a second major topic of interest — an evaluation of the theory of Balfour and Taylor that the notion of an interpretation, or

at least of a correct interpretation, of a text, requires the notion of an author. God, they argued, is needed to ensure that the canons actually provided for interpreting sensory experience are applicable to the text at hand. From the point of view adopted here, this is not an unreasonable suggestion, but a determination of its validity must await a more detailed rational reconstruction of the history of the individual's interpretation of his sensation.

III

Foucault\textsuperscript{13} tells us of the Renaissance naturalist Aldrovandi, who considered his account of the snake incomplete until he had treated it in its anatomical, heraldic, allegorical, medicinal, anecdotal, historical, and mythical aspects. A modern scientist (Foucault instances Buffon) regards only a few of these aspects as relevant to the scientific picture of the snake. The modern scientist is the beneficiary of a process of separation of the "scientific" aspects of things from the accretions due to human interest in them, a process beginning with the child's understanding that yellow things have something in common independently of whether or not they are pleasurable to himself. The example illustrates the continuity between the everyday interpretation of sensory experience, resulting in the "manifest image" of the world, and scientist's further adaptation of that image. The scientist must approach the picture resulting from sensory experience in the critical spirit of an exegete confronting a complex text. Interpretations locally adequate are never hard to find; that is, interpretations able to account for each sufficiently small piece of the text. But a global interpretation, one which not only provides a meaning for each piece of the text, but does so in such a way that the meanings of all parts are consistent, is in general difficult to find. For practical exegesis, the guiding insight provided by hermeneutics is the subtle interplay of global and local interpretation. One the one hand, it is "the very first principle of construction to read the whole instrument before pronouncing on the interpretation of any section, and still more of any single word in that section."\textsuperscript{14} Global interpretation takes precedence. On the other hand, this global interpretation must itself be a function of the readings of the parts. This double movement of generation of the global by the local and revision of the local in the light of the global forms the core of the hermeneutical dynamic.

Applying this to the perceptual text, the existence of sensory illusions reveals the inadequacy of the manifest image as a global interpretation;

\begin{itemize}
\item[\textsuperscript{14}] \textit{Minister for Lands v. Jeremias} (1917), 23 Commonwealth Law Reports 322, at p. 332.
\end{itemize}
the success of science lies in achieving a more adequate replacement. In fact, the scientific reinterpretation of the naive picture not only conclusively vindicates the hermeneutic method, but even more shows the success that can be attendant on a bold and comprehensive program of reinterpretation. The scientific picture of the world, though “based” on the naive picture by successive advances of horizon to accommodate apparently minor discrepancies in the pre-existing picture, has resulted in the virtual disappearance of some of the most obvious features of the original. The biological salience of colour, for example, might have seemed proof against any attempts to overthrow it, but in fact colour occupies at most a minor and derivative place in the developed scientific position. Colour is not alone in being thus relegated; the filling-up of space by solid objects hardly remains at all, and it is almost a truism of plant classification that the most prominent features of a plant, such as petal shape and colour, have the least significance for classification. The scientific picture provides at once the most large-scale, the most radical, and the most publicly prestigious case of an application of the hermeneutic method.

The size of the scientific enterprise means that the history of science exhibits in vivid detail the perils of distortions of the hermeneutic method. Misplaced fundamentalist ingenuity expended in attempts to reconcile contradictions in the naive interpretation has at different times produced the result to be expected from making adjustments piece by piece instead of substituting a new paradigm: eventually the interpreter finds he has painted himself into a corner, protected from reality by a barricade of epicycles. Kuhn’s theory of paradigm change is sufficiently familiar to make further development of this theme unnecessary here. Kuhn writes:

In science . . . novelty emerges with difficulty, manifested by resistance, against a background of expectation. Initially, only the anticipated and usual are experienced even under circumstances where anomaly is later to be observed. Further acquaintance, however, does result in awareness of something wrong or does relate the effect to something that has gone wrong before. That awareness to anomaly opens a period in which conceptual categories are adjusted until the initially anomalous has become the anticipated.\(^{15}\)

As a succinct description of adjustment in the mature stage of the interpretation of a text, this would be hard to better. It only remains to situate Kuhn’s remarks within a theory of general hermeneutics. There is nothing peculiar to science in paradigm change — the same considerations apply to any text, when the need arises to balance the advance possible by a catastrophic change in interpretation against the complications resulting from a continuous tinkering with previous positions.


518 JAMES FRANKLIN
If the preceding analysis is correct, the cross-fertilization of scientific methodology and hermeneutics will be of benefit to both. Hitherto, the paradigm of a sustained hermeneutical exercise has been the interpretation of the Bible. Successful though this has been as a sounding-board for different critical approaches, the project has always been marred by certain anomalies which, though essentially irrelevant to the general issues, have tended to obscure the clear lines of the principles involved — accidental textual deviations compounded by later parti pris dogmatic formulae, apocryphal sequels, numerological nonsense, and various problems caused by the plurality of authors, including historical developments in authorial intentions and self-referential interpretations of Old Testament prophecies by later biblical authors. Most of these difficulties merely add to the confusion surrounding the scriptural text without contributing anything to our understanding of the hermeneutical process. The text addressed by the perceiving subject, by contrast, labours under few disadvantages. The initial text is given to the philosopher in his armchair as much as to anyone; no reliance need be placed on experts in manuscripts or extinct languages. Where there are difficulties over the establishment of the text, as over possible differences in the perceptual apparatus of different perceivers, the problems are at once clear and relevant to the main issues. Notwithstanding the existence of perceptual illusions, the text in question has revealed itself to be a remarkably consistent one; the agreement among scientists is legendary, and is rightly regarded as one of the chief boasts of natural science. But parallel to, and conditioned by, this consistency of the world as object is the possibility of controlled experiments in which the conditions of perception are varied, and the interpretative reaction of the perceiver assessed. There are various well-known experiments of psychologists which attempt this, and more significantly the explorations undertaken by many artists of the present century. The achievement of “photographic realism” by painters in the nineteenth century (and the achievement of photography itself) freed painters to examine the effects of placing various non-natural forms before the interpreting eye. This is as true of the abstract painter who alludes to the schemas of perception by carefully avoiding all those that threaten to interpret his work as representing some familiar object, as it is of the cubist who represents a recognizable object in a non-illusionist way. Both, by the eschewal of “realism,” demand that their paintings be seen as paintings, and not transparently, as if they were a window on some view. For us, the significance of this will be to remind us of the possibility of doing the same with perception itself. In outline, the achievements of modern art in this
direction are again too familiar to require repetition. Certainly, it is the
details of these discoveries, rather than the generalities sketched here, that
will be significant for the light they cast on perceptual interpretation. But
to develop this theme would obviously require another kind of investiga-
tion.

On the other side, the advantages to the philosophy of science accruing
from an admission of its affinity with hermeneutics may be even more
valuable.

Debates between "realism" and "instrumentalism" tout court will
seem as antiquated as those of the 1840's between biblical literalists and
textual iconoclasts, who held that the Scriptures were a pure fabrication
from which no information whatever about the historical Jesus could be
recovered. Attention will rather be directed towards particular
approaches which respect the continuity between scientific and perceptu-
tal interpretation. Of this kind is the position of Armstrong, who
argues for the reality of microscopic entities on the basis of the continuity
between what is seen by, respectively, the naked eye, magnifying glasses,
light microscopes, and electron microscopes. Philosophers on all sides
will be relieved of the necessity to attribute reality to various entities —
force fields, four-dimensional space-time, even numbers — simply
because authoritative scientific writers refer to them in their works. The
choice does not present itself as a stark either/or decision between
discourse taken letter by letter au pied, against a chaotic democracy of
"useful fictions." Rather, the philosopher hoping to establish the ontolog-
ical commitments of, say, general relativity, will be required to remain
sensitive to the purposes of theorists in introducing this or that concept,
the relations of the theory to the experimental evidence for it, and the sta-
tus of results in "lower" or pre-existing bodies of science whose results are
subsumed under those of the more general theory.

These requirements will constitute a constraint on the philosopher of
science, but will confer a more than compensating freedom — the
freedom to reach the truth.

17 D. M. Armstrong, Perception and the Physical World (London: Routledge and Kegan