The Legacy of Nelson Goodman

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Nelson Goodman was one of the soaring figures of twentieth century philosophy. His work radically reshaped the subject, forcing fundamental reconceptions of philosophy's problems, ends, and means. Goodman not only contributed to diverse fields, from philosophy of language to aesthetics, from philosophy of science to mereology, his work cuts across these and other fields, revealing shared features and connecting links that narrowly focused philosophers overlook. That the author of The Structure of Appearance also wrote Languages of Art is not in the end surprising.

No philosophical progress is made, Goodman believes, by arguments adverting to something we know not what. He therefore rejects intensional entities -- meanings, essences, propositions, and possibilities -- deeming their criteria of identity irremediably obscure. He even repudiates sets, since he regards as unintelligible the contention that the same basic elements (e.g., the null set) can comprise infinitely many distinct entities (the sets). Such austerity threatens to leave him bereft of resources. But Goodman's principled parsimony combines with inventiveness and critical acuity to obviate the need for such devices.

As graduate students, Goodman and Henry Leonard developed a version of

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1This paper was presented at the Harvard Memorial Symposium in honor of Nelson Goodman, and at the 2000 Central Division meeting of the American Philosophical Association. I am grateful to members of both audiences for their helpful comments.
mereology that they called the calculus of individuals. Elaborated in *The Structure of Appearance*, it grounds Goodman’s nominalism. Goodman takes the difference between mereology and set theory to lie in the constraints on construction they permit. Set theory admits infinitely many distinct entities -- sets of sets of sets of sets . . . -- all composed of the same basic elements. Mereology holds that the same basic elements are parts of but a single whole. Goodman’s nominalism consists in a refusal to recognize more than one entity comprised of exactly the same basic elements. This says nothing about the metaphysical constitution of the elements. Whether to countenance abstract or concrete, material or immaterial, mental or physical, scattered or only spatio-temporally continuous entities requires more than nominalism to decide. A theory that restricts composition to mereological summing admits only individuals into its ontology. Entities countenanced by such a theory, no matter how scattered, weird or motley they may be, are individuals. Throughout his work, Goodman shows how appeal to unfamiliar, but metaphysically unobjectionable individuals often obviates the need for sets, properties, and other ontologically suspect entities.

In the late 1940s, Goodman, Quine, and White wrote a series of papers repudiating the analytic/synthetic distinction. Discussions of the analytic/synthetic distinction typically concern criteria for sameness of meaning. Goodman focuses on differences in meaning. Rather than invoke connotations or senses, he appeals to a

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wider range of extensions. He invokes what he calls *secondary extensions* -- extensions of compounds containing the terms in question. Goodman contends that two terms are synonymous just in case they agree in primary extension and in all secondary extensions. Although ‘unicorn’ and ‘centaur’ have the same (null) primary extension, because compounds such as ‘unicorn picture’ and ‘centaur picture’ differ in extension, ‘unicorn’ and ‘centaur’ differ in meaning. This fits our intuitions. But even seemingly synonymous terms differ in meaning according to Goodman’s criterion. Although ‘spine’ and ‘backbone’ seem synonymous, we can readily contrive a spine description that is not a backbone description -- e.g., ‘spine that is not a backbone’. In general, ‘p that is not a q’ is a p-description but not a q-description. Such an all-purpose device for generating differences in meaning might seem illegitimate. But even if we exclude its deliverances, pictures, descriptions, and the like that belong to a secondary extension of one but not both of a pair of coextensive terms are ubiquitous. The vast majority of seemingly synonymous terms fail to satisfy Goodman’s criterion.

Does this tell against synonymy or against the criterion? Although Goodman says little in support of his criterion, its justification is readily found. Synonymous terms should be intersubstitutable in fiction as well as in fact. Nothing should count as a description (or picture) of the referent of the one that is not a description (or picture) of the referent of the other. So divergence in the classifications of descriptions or pictures marks a divergence in meaning.

Secondary extensions are not just a device for discrediting synonymy. They afford resources for recognizing degrees and kinds of likeness of meaning. To do so, we limit our focus. Parallel compounds are obtained by appending exactly the same
sequence of terms to each of several terms. If, within a restricted range, all parallel
compounds of a pair of coextensive terms are coextensive, the meanings of the
coextensive terms agree within that range. The terms then may be sufficiently
similar in meaning to be intersubstitutable within that range, even if their meanings
diverge elsewhere. If in medical discourse all and only instances of ‘spine
representation’ are instances of ‘backbone representation’, ‘spine’ and ‘backbone’
may be sufficiently similar in meaning to be intersubstitutable in purely medical
contexts. If most parallel compounds are coextensive, or most important parallel
compounds are coextensive, there are grounds for deeming terms sufficiently
similar in meaning to justify substituting one for the other. In place of a rigid,
context-indifferent criterion of synonymy, Goodman provides a flexible, context-
sensitive criterion of likeness of meaning.

The analytic/synthetic distinction is not unique. Other familiar dualisms --
essence/accident, scheme/content, necessity/contingency, and the like -- are
vulnerable to similar objections. All must be rejected, Goodman, Quine, and White
believe. Unlike Quine, Goodman spent little time thereafter arguing against the
dichotomies. He simply jettisoned them and proceeded to do philosophy without
them. His strategy amounts to a second front in the fight against the dualisms.
Success in doing philosophy without them affords evidence that they are
unnecessary. Since we ought not clutter theories with unnecessary bells and
whistles, evidence that they are unnecessary is evidence that their introduction is
unwarranted. The evidence, needless to say, is less than conclusive. Goodman by
no means solves, or even takes up, every problem the dualisms are standardly
adduced to solve. Nor do his positions, approaches, or conclusions command
universal assent. But the more progress that is made without recourse to the
dualisms, the less reason we have to endorse them. Slowly, our default
assumptions shift. Rather than continuing to take it for granted that philosophy can
and should rely on the disputed notions, we come to recognize that appeal to them
requires justification and begin to suspect that that justification may not be
forthcoming.

The ostensible objective of *The Structure of Appearance* is to construct a
phenomenalist system. Traditionally, phenomenalism maintains that all *a posteriori*
knowledge derives from what is given in experience. If so, the goal of a
phenomenalist construction is to provide the derivation. That is what Carnap
attempts in the *Aufbau*. Goodman changes the subject. He believes the myth of
the given cannot survive the repudiation of the scheme/content distinction. He
denies that, independent of and prior to systematization, some things are and other
things are not really primitive. He doubts that a phenomenalist system can
underwrite physicalism, but denies that this is a defect of either phenomenalism or
physicalism. So besides providing a phenomenalist construction, *The Structure of
Appearance* develops a theory that motivates, explains, and justifies the sort of
construction Goodman seeks to provide.

Modern logic supplies powerful tools for investigating philosophical problems.
But logic alone, being uninterpreted, cannot solve substantive problems. We need
an interpreted formal system that delineates logical relations in a domain. Not just
any formally correct interpretation will do. To advance or consolidate our
understanding of a subject, an interpretation must duly respect antecedent
convictions. Duly respecting convictions is not, Goodman maintains, the same as
replicating them. Pretheoretical beliefs tend to be vague, inchoate, irreconcilable or otherwise theoretically intractable. By devising an interpreted formal system that derives them from or explicates them in terms of a suitable base of primitives, we bring them into logical contact, eliminate inconsistencies, disclose unanticipated logical and theoretical connections. Regimentation involves judicious correction, refinement, even rejection of presystematic convictions in the interests of consistency, coherence, simplicity, and theoretical tractability. If a system is supposed to correct, extend and deepen our understanding of a domain, the standard of acceptability cannot be coextensiveness of pretheoretical and theoretical terms. Instead, Goodman requires that the pretheoretical beliefs to which, prior to systematization, we have the strongest epistemic commitment map onto truths of the system. The mapping of other sentences is a matter of indifference. More than one mapping will satisfy Goodman’s requirement. One might identify a geometrical point with the intersection of two intersecting lines. Another might identify it with the limit of a sequence of nested spheres. The definitions are not equivalent. Each provides a geometrically acceptable definition of a point. Neither invalidates the other. Here lies the root of Goodman’s relativism. Multiple, acceptable systems can be constructed to accommodate the same range of antecedent convictions. Relative to each acceptable system, the constitution of a point is determinate. But absolutely and independently of the systems we construct, it is indeterminate.

A term in a constructional system is a primitive if it is treated as basic. The choice of primitives, Goodman maintains, is largely a practical matter. Ceteris paribus, we want as austere a basis as we can get. But nothing follows about what
sorts of entities should comprise the basis. Carnap’s *elementarerlebnisse* are unrepeatable, concrete particulars out of which repeatable qualities are constructed. Goodman’s qualia are nonconcrete, repeatable elements out of which particular experiential events are constructed. We might prefer one or the other on grounds of simplicity or convenience. And these, Goodman believes, would be good reasons. But it makes no sense to think that one is somehow more accurate to the character of experience itself than the other. ‘Primitive’ is a functional term that characterizes an item’s role in a theory or constructional system. It is not a term that describes components of experience itself (whatever that might be). The primitives are not, and need not be, familiar facets of experience. Just as physics adduces quite unfamiliar entities to make sense of familiar physical interactions, a phenomenalist system adduces unfamiliar entities to make sense of familiar experiences. In both cases, the idea is to get behind or beneath the familiar to disclose underlying structure. Anything can be basic, on Goodman’s view. But a good basis consists of elements that we consider sufficiently clear and unproblematic that they need no further analysis, sufficiently economical that they give rise to an integrated theory, and sufficiently useful that the theory yields the sorts of insights we seek.

Although *The Structure of Appearance* develops and displays the virtues of a phenomenalist system, it does not espouse phenomenism. It does not contend that its system either does or should underwrite or supplant physicalism. “The interest of a system does not depend on its all-inclusiveness any more than the interest of chemistry depends on whether it ever absorbs biology.”

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constructional system is valuable to the extent that it discloses interesting and important aspects of a domain. It need be neither comprehensive nor monopolistic. Goodman sees no reason to believe that only one structure of interest and importance is to be found in a given domain, no reason to believe that there is exactly one underlying way things are.

*Ways of Worldmaking* provides a less formal treatment of many of the central themes of *The Structure of Appearance*. It argues that worlds and the items they contain are made rather than found. They are made by the construction of world versions -- symbol systems that supply structure. Any two items are alike in some respects and different in others, so inspection alone cannot reveal whether two manifestations are of the same thing or two things are of the same kind. To decide that requires knowing what it takes to be the same thing or of the same kind. We need criteria of individuation and classification to distinguish differences that matter from differences that do not. Nature does not supply them. By devising category schemes, we decide where to draw the lines.

Lines can be drawn in different places, yielding divergent, equally viable world versions. One might consider the platypus a mammal; another, a bird; yet another, an intermediate between a mammal and a bird. None of these discredits the others. Each comports with many of our relevant antecedent beliefs. Relative to its own world version, each of these is right; relative to its rivals’, each is wrong. But absolutely and independently of the versions we construct, none is right or wrong. The acceptability of conflicting world versions is not a temporary condition that will be remedied by further inquiry. Some currently acceptable versions will no doubt be ruled out by future findings. But those findings will support a multiplicity
of new versions. Divergent systems are acceptable, not because currently available evidence is inadequate, but because even the most demanding criteria of adequacy are multiply-satisfiable. Our standards of acceptability are not selective enough to yield a unique result. Nor do we know how to make them so. We have every reason to believe that no matter how high we set our standards, if any world version satisfies them, many will do so.

The plurality of acceptable versions results from the existence of mutually irreducible conceptual schemes. Why don’t we just say the schemes provide different characterizations of the same facts? Then there are several divergent versions of the same world. The trouble is that we lack the resources to justify, or even make sense of the claim that all overlapping acceptable versions pertain to the same facts. Without the scheme/content distinction, we have no way to distinguish the conceptual from the factual. There is, as Quine says, a double dependence on meaning and fact. But without the discredited dualisms, we lack a basis for saying that various versions conceptualize the same facts. Category schemes provide the criteria of identity for their objects. Since mutually irreducible schemes do not invoke equivalent criteria, they do not treat of the same things.

Not every world-version is acceptable nor does every claim belong to some acceptable world-version. Goodman’s relativism has rigorous restraints. Consistency, coherence, suitability for a purpose, accord with past practice and antecedent convictions are among the restraints he recognizes. Fitting and working are the marks of an acceptable version. A world version must consist of components that fit together. The version must fit reasonably well with our relevant

5Quine, “Two Dogmas,” p. 42.
prior commitments and must further our cognitive objectives. Such features as inconsistency, incoherence, arbitrariness, and indifference to practice, ends and precedents are indicative of unacceptable world versions. The distinction between invention and discovery, between making and finding, is as spurious as the other dualisms Goodman discounts. Nor is worldmaking exclusively the province of science. Goodman argues forcefully that art also makes worlds.

This requires radical reconceptions of art and aesthetics. Art functions cognitively, Goodman maintains. Aesthetics explains how. Aesthetics, as Goodman conceives it, is a branch of epistemology, for the aesthetic attitude involves not passive contemplation, but active intellectual engagement with symbols whose interpretation is elusive. Goodman believes that works of art, like scientific reports and everyday discourse, consist of symbols. Understanding them requires understanding the symbol systems they belong to. Languages of Art develops a taxonomy of symbol systems and delineates the powers and limitations of systems with different syntactic and semantic structures. It thus constitutes a major contribution to the understanding not only of art, but of languages and other symbol systems in all domains.

Goodman recognizes two basic modes of reference -- denotation and exemplification. Denotation is the familiar relation of a word to its object. A name denotes its bearer; a predicate denotes the members of its extension. Goodman contends that many pictures and other non-verbal symbols also denote, for they stand to their objects in the same relations as names and predicates do to theirs. A portrait denotes its subject; a generic picture, like the picture of a warbler in a field guide, denotes each of the items it applies to. The denotation of fictive symbols is
null, since nothing in reality answers to them. The interpretation of such symbols, Goodman maintains, depends on what terms denote them. It might seem that we need to know what such a symbol denotes before we know which symbols denote it; e.g., that we need to know that the picture on the card denotes Santa Claus in order to know that ‘Santa Claus picture’ denotes the card. Goodman thinks otherwise. Just as we recognize pictures as landscapes without comparing them to the real estate (if any) that they depict, we recognize Santa Claus pictures without comparing them to their referents. We learn to classify pictures and descriptions directly, by learning to recognize the relevant features that they share with one another. We need not compare them to anything else.

Some symbols, such as abstract paintings, do not purport to denote. They refer, Goodman says, via exemplification. In exemplification, a symbol highlights some of its own features, and thereby both refers and affords epistemic access to them. A commercial paint sample exemplifies its color and sheen. An abstract expressionist painting exemplifies paint’s viscosity. Exemplification is not peculiar to art and commerce. It is ubiquitous in science, in pedagogy, and elsewhere. An experiment exemplifies the features it tests for. A sample problem in a text book exemplifies the problem solving strategies students are expected to learn. Here too, Goodman’s investigations into aesthetics illuminate a lot more than the arts.

Denotation and exemplification are not mutually exclusive. Picasso’s portrait of Gertrude Stein denotes Stein and exemplifies monumentality. Symbols in the arts typically perform multiple interanimating referential functions.

Neither denotation nor exemplification need be literal. ‘Solidly grounded’ denotes no theories literally. Nevertheless, we readily distinguish theories that are
solidly grounded from theories that are not. Moreover, the statement that a theory is solidly grounded says something informative and important about it. Goodman’s explanation is that the term ‘solidly grounded’ denotes some theories metaphorically. To say of such a theory that it is solidly grounded is to say something true. He takes a similar line with exemplification. A symbol can exemplify only features it has. Proofs, being inert, cannot literally exemplify power. But some proofs possess and exemplify power metaphorically. Gödel’s proof is, and presents itself as, powerful. In so doing, it metaphorically exemplifies power. Metaphorical denotation is real denotation, and metaphorical exemplification is real exemplification.

The use of symbols effects connections both within and across domains. The members of any collection bear some similarity to one another. Not every similarity is worth noting. By contriving category schemes, we group together things whose resemblance matters, and supply labels to characterize what the members of those groups share. We thereby impose order on a realm. The labels that make up a category scheme literally denote the items they characterize, and render salient features that their denotata share.

Category schemes are not comprehensive. Moreover, however well we construct our schemes, there will inevitably be interesting and fruitful similarities, within and across domains, that they fail to capture. This is where metaphor comes in. A metaphor cuts across literal classifications, grouping together items that no literal label does. It thereby affords epistemic access to similarities and differences that literal terminology obscures. ‘Sibling rivalry’ metaphorically denotes a range of simultaneously competitive and congenial relationships outside the family circle. It
reveals similarities in seemingly disparate relationships, and yields insight into
tensions among students, colleagues, and others who share a history. By likening
these relationships to those the term applies to literally, the metaphor creates a
cognitive bridge that enables us to exploit our understanding of family dynamics to
illuminate a broader range of human relationships.

Goodman neither seeks nor finds the essence of art. He thinks there is none.
He is skeptical of essences on metaphysical grounds. He recognizes that art is
dynamic. It continually breaks new ground and fruitfully flouts established
conventions and convictions about its limits. New works function in new ways, and
draw attention to hitherto unnoticed ways that old works functioned. Artistic
advances fuel epistemic advances. So, a sharp, stable criterion for aesthetic
functioning is unlikely to be found. Some things -- found art, for example -- function
as art in some contexts but not in others. But Goodman does not think that this
means that the concept of art is vacuous or subjective. Rather than focusing on the
essentialist question, “What is art?”, he advocates asking, “When is art?” -- under
what circumstances does an item function as art? In attempting to answer it, he
identifies five symptoms of the aesthetic: syntactic density, semantic density,
relative repleteness, exemplification, and complex and indirect reference. Like
symptoms of a disease, they are neither necessary nor sufficient. But they are
indicative, for they “tend to focus attention on the symbol rather than, or at least
along with, what it refers to. Where we can never determine precisely just which
symbol of a system we have or whether we have the same one on a second
occasion, where the referent is so elusive that properly fitting a symbol to it requires
endless care, where more rather than fewer features of the symbol count, where the
symbol is an instance of the properties it symbolizes and may perform many interrelated simple and complex referential functions, we cannot merely look through the symbol to what it refers to as we do in obeying traffic lights or reading scientific texts, but must attend constantly to the symbol itself as in seeing paintings or reading poetry.”⁶ By attending constantly to the symbols themselves we gain new ways of seeing, hearing, and understanding not just the symbols, but other things as well. “After we spend an hour or so at one or another exhibition of abstract painting, everything tends to square off into geometric patches or swirl in circles or weave into textural arabesques, to sharpen into black and white or vibrate with new color consonances and dissonances.”⁷ Successful encounters with the arts yield new world versions, new structures of appearance and of reality.

*Fact, Fiction, and Forecast* demonstrates that reordering creates problems as well as opportunities for cognitive advancement. The fact that the members of every collection have some feature in common gives rise not only to insightful metaphors but also to the new riddle of induction. Induction involves projecting from a limited body of evidence. But every body of evidence belongs to a multitude of wildly divergent extensions. To which of them ought we project? The grue paradox affords a trenchant example of the difficulty.

\[ x \text{ is grue } =_{df} x \text{ is examined before future time } t \text{ and is found to be green or } x \text{ is not so examined and is blue.} \]

‘Grue’ is a well-formed predicate. Its extension is as determinate as the extensions of ‘green’ and ‘blue’. It is syntactically and semantically unobjectionable.

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⁷*Ways of Worldmaking*, p. 105.
Nevertheless, it threatens to undermine induction. Time \( t \) being in the future, all emeralds in our evidence class are in fact grue. The evidence accords with both

\[
\text{All emeralds are green}
\]

and

\[
\text{All emeralds are grue.}
\]

If any emeralds remain unexamined at \( t \), the two generalizations are incompatible. We are not remotely inclined to infer that all emeralds are grue. We confidently expect future emeralds to be green, not blue -- hence, not grue. What, if anything, justifies this expectation? What favors projecting ‘green’ rather than ‘grue’?

The very framing of the problem undermines a seemingly obvious and widely accepted standard of inductive support: a generalization is confirmed just in case all the objects in its (ungerrymandered) evidence class conform to it. ‘All emeralds are grue’ satisfies that standard. If the standard is acceptable, the evidence confirms ‘All emeralds are grue’. There is no contradiction in this. But it is counterintuitive. Moreover, if we retain the standard and accept the consequences, induction loses its point. For in that case we have no reason to infer ‘All emeralds are green’ rather than ‘All emeralds are grue’ or any of the infinitely many alternatives that do not conflict with the evidence. The paradox discloses a surprising feature of inductive validity. The validity of an inductive inference depends on the characterization as well as the constitution of the evidence class. It matters how the evidence is described.

That the evidence should be described as green rather than grue is not in dispute. But the reason is far from clear. An easy and obvious explanation is that ‘green’ is more primitive, since ‘grue’ is defined in terms of ‘green’. But whether a
term is primitive or defined depends on where you start. With the help of ‘bleen’, Goodman brings this out.

\[ x \text{ is bleen } =_{df} x \text{ is examined before future time } t \text{ and is found to be blue or } x \text{ is not so examined and is green.} \]

By taking ‘grue’ and ‘bleen’ as primitive, we can define ‘green’.

\[ x \text{ is green } =_{df} x \text{ is examined before future time } t \text{ and is found to be grue or } x \text{ is not so examined and is bleen.} \]

Primitiveness, as Goodman insisted in *The Structure of Appearance*, is not a theory-neutral characteristic of predicates. Neither ‘green’ nor ‘grue’ is intrinsically more primitive than the other.

A related objection is that ‘grue’ is positional. Induction is supposed to follow the laws of nature, which are supposed to be independent of particular positions in space and time. Since a specific time \( t \) figures in its definition, ‘grue’ cannot occur in lawlike generalizations. It is therefore inappropriate for induction. Goodman’s rebuttal is the same. ‘Grue’ requires reference to \( t \), if you start with ‘green’. But ‘green’ requires reference to \( t \), if you start with ‘grue’. Positionality, like primitiveness, is theory-dependent. If positionality precludes lawlikeness, then whether a generalization is lawlike also depends on where you start. The lawlikeness of a generalization is an artifact of the structure of the theory that it belongs to.

The distinction between lawlike and accidental generalizations is linked to the distinction between natural and artificial kinds. It is tempting to defend the preference for ‘green’ by saying that it designates a more natural kind than ‘grue’ does. But without an acceptable standard of naturalness that does not presuppose
the differences in projectibility that we’re trying to explain, this claim is untenable. For we know neither what it means, nor how to tell whether one predicate is more natural than another.

The grue paradox arises because regularities in the evidence are inadequate to decide between divergent projections. Goodman’s solution involves appeal to additional regularities -- regularities in linguistic usage. ‘Green’ is projectible and ‘grue’ is not, Goodman maintains, because ‘green’ is far better entrenched than ‘grue’. That is because ‘green’ and terms coextensive with ‘green’ have been projected far more often than ‘grue’ and terms coextensive with ‘grue’. This regularity in usage does not, of course, show that ‘green’ cuts nature at the joints. Nor does it insure that the projection of ‘green’ will continue to be successful. We have no lien on the future. No solution to the grue paradox can get around that. Goodman’s grounds for favoring entrenchment reconceive the problematic. Since we don’t know what the future holds, the future affords no reason to favor either predicate over the other. The question is, how should we proceed given the state of ignorance in which we inevitably find ourselves? Goodman believes that validity favors entrenched predicates, not because they are more likely than their rivals to figure in true predictions, but because, being deeply enmeshed in our inductive practices, they enable us to make maximally good use of available cognitive resources. The demand for entrenchment does not preclude innovation. Novel predicates become projectible by fitting into working inductive systems or into replacements for systems that do not work. Goodman’s solution to the new riddle of induction is pragmatic. The reason for favoring entrenched predicates lies not in their syntactic, semantic, or metaphysical priority, but in their utility.
Nelson Goodman’s philosophy combines judicious skepticism about received wisdom, uncompromising rigor, and seemingly unbridled creativity in reconfiguring philosophical problems, resources, and objectives. The solutions he offers are not permanent resting places, but launch pads for further inquiry. The mark of a good answer, he thinks, is that it leads to good questions. In 1946, Goodman said, “Descartes faced his world as a skeptic with a method -- in other words, as a courageous, humble and hopeful man. Perhaps our glance back at him may remind us that there can be no security in traditions that failed us; that by patient and systematic use of our best faculties we may advance, but that there is no black market in truth; that the results of wishful and fearful thinking cannot survive encounter with conflicting facts; and -- finally -- that a belief that will not stand the strictest scrutiny of doubt and reason will not withstand the oratory of the next demagogue.”

Apart, perhaps, from the word ‘humble’, the same might be said of Nelson Goodman. His works altered the contours of philosophy in the twentieth century.

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