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Understanding Naturalism With Quine From Within Science and History

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ABSTRACT

In this essay, I present Quine's fragmented and often forgotten views on writing history. However, this needs to be done in conjunction with an examination of his notion of science as our "total world-picture." Quine elegantly avoids the task of specifying a demarcation criterion of science. The result is to position science as a Wittgensteinian language game that gradually expanded from its purpose of predicting our experiences and became socio-historically institutionalized set of practices. Thus, this essay has two aims; (i) I analyze Quine's idiosyncratic, post-positivist concept of science with a particular focus on his inclusion of sciences that are traditionally labeled as soft or social. Then, (ii) I eventually indicate how Quine deals with historical inquiry. When taken together, this essay can also be read as a case study analysis of Quine's take on all non-experimental modes of scientific inquiry, and, more broadly, his special account of naturalism and pragmatism.

> Philosophers long made a mummy of science. When they finally unwrapped the cadaver and saw the remnants of an historical process of becoming and discovering, they created for themselves a crisis of rationality. That happened around 1960.
> –Ian Hacking[1]

> I philosophize from the vantage point only of our own provincial conceptual scheme and scientific epoch, true; but I know no better.
> –W. V. O. Quine[2]

[1] Hacking (1983: 1).
[2] Quine (1969c: 25).

Reader's Guide

Quine is undoubtedly one of the most influential philosophers of the second half of the 20th century. Within the analytic tradition of philosophy, Quine significantly contributed to the demise of positivism and is often *retrospectively* characterized as one of the first post-positivist or post-analytic philosophers. Some even suggested that Quine is a post-modern philosopher (for example, Patterson 1996; Ciupe 2007). On the contrary, John H. Zammito claims (and he is certainly not the only one claiming this) that, with respect to a variety of issues, Quine "remains an unregenerate positivist" (Zammito 2004: 43 see also 47).[3]

In any case, Quine's analyses of meaning, inscrutability of reference, indeterminacy of translation, and evidential undetermination of theories have had a decisive influence on diverse theorizers and philosophers; I would like to point out people such as Nelson Goodman, Thomas Kuhn, Donald Davidson, and Richard Rorty. And more importantly for my aims here in this essay, Quine is (in)famous for his endorsement of naturalism. However, as in the case of every original and radical thinker, Quine's philosophical positions and the tenets of his naturalism require a subtle and sophisticated treatment. Roger F. Gibson suggested that: "There is a key to unlocking a correct interpretation of Quine which many of his critics and commentators have overlooked. That key is Quine's commitment to naturalism," (Gibson (1992: 17); compare also Hylton (2007)).

Although I do agree with Gibson in general outlines, I suggest, and argue in the following sections, that the interpretative key is rather his conception of science. This is simply because Quine's commitment to naturalism is a scientific commitment (however "scientific" in the sense that must be further specified).[4] I propose that Quine co-opts the

[3]Compare Hacking (1983: 41ff) for an instructive analysis of "positivism"; see also Putnam (1992). Informative are also the early ambiguous receptions of Quine's most systematic book *Word and Object* published in 1960 as documented by Verhaegh (2018: 151–155). Note that I strongly disagree with Zammito. What is, however, true is that Quine often writes as a positivist; he uses the central concepts similarly. But I argue that he does it only after he radically re-assesses the positivist starting points. I am therefore convinced that the study of Quine's philosophical system is an indirect study of the transition from positivism to post-positivism which happened around 1960.

[4]I thus cannot, for example, wholly agree with Gibson's conclusion that "Quine's epistemological perspective (empiricism) presupposes his ontological perspective (physicalism);

concept of science for his own explicatory aims, and reconfigures not only its relation to epistemology but to rationality as such. Naturalism is then simply a historical label for this reconfiguration. Expanding on this, I highlight that this reconfiguration entails both recognizing that science/rationality is historically dynamic and recognizing that science/rationality derives its epistemic authority in part from its own history. I thus purposely analyze Quine's views on history (meaning the natural/cultural past), as well as on historical theorizing itself (meaning history as a scientific discipline).

This interpretative approach to Quinean naturalism could, I hope, foster a better understanding of science/natural*ism*, and its relation to contemporary philosophy and/or our intellectual culture. Also, I see this approach as a contribution to the ongoing attempts to (philosophically, historically, sociologically, etc.) illuminate the development of post-positivist accounts of science. Roth recently stated that "some attention must be paid to how the notion of science has itself evolved postpositivism in order to appreciate what one endorses if one declares for naturalism," (Roth 2020: 118). I consider myself doing precisely that when exposing that Quine's notion of science is strikingly post-positivist.

Also, I must note that my aims are *primarily* conceptual, not chronological or contextual. I try to fully exploit the fact that I analyze Quine's thoughts with the help of his later works, taking stock of his views and also the fact that Quine is a stubbornly consistent thinker, trying to answer the same set of questions throughout his whole professional career. So, instead of providing arguments for what Quine really thinks, likewise *where* and *when*, I propose a particular reading and understanding of the Quinean naturalism. Put another way, although I engage with Quine's work across his entire career, I regard his later writings as more authoritative for interpreting his naturalistic legacy.

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and the key to interpreting Quine is the recognition that the findings of empiricism do not repudiate the ontology in which those findings are articulated," (Gibson (1992: 27); compare especially Section 1).

Introduction: What, for Quine, Is Science?

It has been more than 50 years since Quine famously called for a movement to naturalize epistemology.[5] As is also well known, Quine construes epistemology unorthodoxly as the study of the foundations of science (Quine 1969a: 69). From a global perspective, his epistemological project was a successful one. It has inspired and instructed scholars and scientists to make their own "naturalistic turns," and natural*ism* has become one of the leading isms for contemporary philosophers. But what, for Quine, is science? This question becomes particularly pressing insomuch as Quine asserts that naturalized epistemology just is "science self-applied" (Quine 1975: 293).

For various reasons, Quine's epistemological naturalism is often understood only as a defense of natural-science-oriented models of explanation, i.e., of direct observations and *experimental* inquiries. Some thus understand Quine's epistemological project as a scientistic doctrine that is hostile to other non-experimental inquires. The case of historiography is then very illustrative in this sense. Intellectual historian and philosopher of history, Frank Ankersmit, for example, confidently proclaims that Quine "never spoke about the writing of history and regarded the discipline with distrust, if not outright contempt," (Ankersmit 2013: 571). This proclamation is ill-judged, not only for its absoluteness ("never spoke"), but also for its unwarranted (and, for that matter, undocumented) accusations.

In the next section, I start with parsing Quine's reconfiguration of epistemology/science. This creates both the necessary context for showing how Quine deals with historiography, and also indirectly reacts to many confusions and simplifications in interpreting Quine that ultimately portray his naturalism as a kind of methodological or disciplinary exclusivism/hierarchism, or even cultural imperialism (see, for example, Haack 1993; Zammito 2004: 46ff; Rorty 2021: 181–184). I also argue that Quine's concept of science shapes what he understands as naturalism and, for example, pragmatism, not the other way around. Then, I finally indicate how Quine deals with historical research. As I am going to demonstrate here, Quine employs a very broad notion

[5]Count from the first publication of the essay "Epistemology Naturalized" (Quine 1969a). But even generally viewed, Quine has actively labeled his position as "naturalistic" since the late 1960s.

of science that includes all the so-called soft and social sciences. And historiography is, more than once, explicitly cited for inclusion. In fact, Quine exploits the example of history as a discipline to illustrate how one can assign scientific status to a non-experimental form of knowledge.

1. Quine and Science as Total World-Picture

I will argue that the uneasiness some scholars and scientists feel when looking at Quine's picture of science springs from interpretations fusing two central parts of his naturalizing project in epistemology, which fundamentally aims at eschewing any a priori and necessary knowledge; "The naturalistic epistemologist dismisses [the] dream of prior sense-datum language, arguing that the positing of physical things is itself our indispensable tool for organizing and remembering what is otherwise, in James' words, a 'blooming, buzzing confusion' " (Quine 1995b: 225). Quine thus aims at developing and defending an a posteriori/empirical epistemological account.

Firstly, there is the much-debated attempt to explain *how* our knowledge of the external world is even possible; how humans as natural and social beings acquire the knowledge of their world. To put it in Quine's own colorful language:

> How we, physical denizens of the physical world, can have projected our scientific theory of that whole world from our meager contacts with it: from the mere impacts of rays and particles on our surfaces and a few odds and ends such as the strain of walking uphill. (Quine 1995a: 16)

Quine then suggests, *from his own historically embedded perspective*, that physics, neuroscience, psychology, and sciences alike, are going to provide us with useful insights into the conditions and possibilities of our knowledge acquisition. According to Quine, this inquiry would then constitute a new type of epistemological perspective, i.e., science that could finally abandon the requirement to be somehow deduced from prior axioms of preferred "first philosophy" (see Quine (1981: 72ff); for cogent analysis, see Roth (1999); Roth (2008)). However, this explanation of our theory-building cannot in itself sufficiently demarcate what science as such and/or the scientific method(s) are, nor what science should be. For this effort simply presupposes specific subject matter (natural and social beings), and then chooses individual disciplines/sciences

(i.e. the body of knowledge that *at the given time* seems to be epistemically suitable) to approach it.

In a certain sense, Quine also had to specify more generally what science is, otherwise his naturalizing project would remain incomplete, if not unintelligible.[6] Put another way, it would be too ambiguous to claim that epistemology must surrender to natural sciences like psychology or neuroscience, without at least hinting at what makes, for example, psychology a (natural) science. Therefore, the second constituting part of Quine's naturalizing project is the attempt to outline—from within the very same epistemological perspective/science—what counts as science itself (compare Quine 1995b: 251).

To be sure, these two parts of Quine's naturalization are meant to be complementary, but they are not identical: the first part explains how it is possible to have knowledge (about the external world), based solely on our sensory input; and the second deals with how it is possible to *justify* our knowledge, relying solely on our sensory input. The second part has two crucial impacts on Quine's conception of science; it creates a *normative force* for the new epistemology, and simply by targeting the justification of knowledge, Quine, qua empiricist, faces what is called the problem of induction (the problem of grounding the validity of inductive inferences that has troubled philosophers at least since Hume). However, qua naturalist, Quine cannot bypass the problem of induction, as his account of scientific knowledge must also be thoroughly empirical (compare Quine (1969a: 74–79)).

Thus, Quine cannot but accept a form of fallibilism and falsificationism. "The Humean predicament is the human predicament," quips Quine (1969a: 72). The problem of induction is an unavoidable consequence of conceiving our *experience* as the only evidential source of our knowledge, and science is our best tool for guiding inductive practices. Even the scientific knowledge is then, strictly speaking, only provisional. So, what is then *science* for Quine?

In stark contrast to many specialists theorizing science in the 20th century, Quine does not strive to find a clear-cut conceptual distinction between *scientific* and *non-scientific* modes of inquiry (Quine 1995b: 252).

[6] As I further insist, I am convinced that the same holds even for Quine's very specific relationship to other traditionally recognized *isms*, such as empiricism, scientism, physicalism, and pragmatism. See also Verhaegh (2018) for a contemporary and cogent account.

Historically speaking, this means that he was not trying to distinguish science from philosophy and/or metaphysics, or even from common sense. Already in 1957, Quine argued that there is no *qualitative* difference between common-sense reasoning and science. The scientist and the layman both begin with related standards of evidential reasoning, but science surpasses common sense by developing higher standards of carefulness, patience and systematicity (see Quine 1957: 5–6). In *World and Object*—one of his most systematic statements—first published in 1960, Quine writes: "Scientific neologism is itself just linguistic evolution gone self-conscious, as science is self-conscious common sense," (Quine 2013: 3). Put another way, scientists develop theoretical systems of (evidential) reasoning.

For Quine, science is the expression and extension of the dispositions inherent to human rationality that has its natural history and, ipso facto, natural underpinnings. To anchor our scientific cognition in nature, Quine in his texts very often sketches a minimalistic evolutionary explanation via the concept of *prediction*. I reconstruct it here from Quine's *Quiddities*:

> Prediction is rooted in a general tendency among higher vertebrates to expect that similar experiences will have sequels similar to each other [. . .]. In our expectation that subjectively similar events will have similar sequels, we and other animals are often deceived [. . .]. What is uncanny, however, is how overwhelmingly much more often our expectations are fulfilled than disappointed. Our standard of similarity, for all its subjectivity, is remarkably attuned to the course of nature [. . .]. For all its subjectivity, in short, it is remarkably objective. In the light of Darwin's theory of natural selection we can see why this might be. Veridical expectation has survival value in the wild [. . .]. A man sees the dawn's early light and, in the light of past experience, he expects birds to sing. Or, blessed with language, he sees the dawn and says "The birds will sing." This *is* prediction. In the fullness of time, he verbalizes his habitual expectation and says "When the sun comes up the birds sing." This, which I call an *observation categorical*, is the first step in scientific theory. It is a hypothesis that generates predictions and can be refuted by failure of prediction. (Quine 1987: 159–161)

This passage reveals that, for Quine, certain innate capacities must be in place for establishing an intersubjective "standard of similarity" in given causal contexts, and this standard is also necessary for developing and learning a language (e.g., Quine 1969b). For this reason, "observation

sentences serve in both ways—as vehicles of scientific evidence and as entering wedge into language," (Quine 1992: 5). Once language is in place, one can not only verbalize their observations and expectations, but also connect two or more observations (observation sentences) into hypotheses (ideally observation categoricals).

All in all, Quine holds that scientific hypotheses (sentences) imply, *directly or indirectly*, hypothetical observation categoricals that carry the following structure: *If A, then B* (When the sun comes up the birds sing). At the same time, these categoricals determine (in our case very elementarily) the observational/experimental consequences for their own "testing" as scientific hypotheses. These categoricals determine expectations, i.e., predict observation *B* from observation *A*. Such a hypothesis can sometimes be refuted by Popperian falsification if one is observing *A* without observing *B*. Equivalently, if one observes the sun coming up while the birds are being silent. This is why Quine's theory of evidence is generally *behavioral/observational* but not necessarily reductive. The empirical consequences will differ from hypothesis to hypothesis, and are also a matter of degree (see, for example, Quine 1957: 15; compare Roth 2003).

I believe that Quine's evolutionary/historical look at scientific rationality is the key to his often misunderstood, or overemphasized, conviction that hypothetico-deductive inferences (i.e., predictive reasoning) represent *the* paradigm of science, which must be in that regard ultimately *empirical,* or one might just say experimental or observational. To put it boldly, Quine thinks, together with all empiricists, that this mode of reasoning is the only guarantee that our theories *about* the world, nested in our *intersubjective language(s)*, are somehow also *connected to* the external world in which we have evolved; it is the only guarantee that our theories have empirical contents (see, for example, Quine 1961a: 77ff; compare Kemp 2017).

In addition, from Quine's historical vantage point, the traditionally conceived *natural* sciences made the most of hypothetico-deductive inferences *so far* (after Darwin, also by offering plausible theories of humans qua *natural* beings and theorizers). Hence Quine in his texts sometimes uses the term "natural science" instead of just "science" to

make this fact explicit.[7] However, predictive reasoning does not exhaust the modus operandi of individual scientific disciplines.

Quine substantively complicates and further crafts this inductivist picture, as is well known, especially by his *semantic holism*[8] that gradually leads to a conclusion that "our statements about the external world face the tribunal of sense experience not individually but only as a corporate body," (Quine 1961c: 41).[9] This presumption is currently labeled as the Quine-Duhem thesis.

How does the holism change the picture outlined above? "In order to deduce an observation categorical from a given hypothesis, we may have to enlist the aid of other theoretical sentences and of many common-sense platitudes that go without saying, and perhaps the aid even of arithmetic and other parts of mathematics," (Quine 1992: 13). Quine points out here that very rarely (if at all) has a single hypothesis (sentence) of a mature science the potential to imply observation categoricals independently of any other theories (sentences). Every single hypothesis/sentence is supported by many *auxiliary* hypotheses/sentences. Furthermore, Quine's fully-fledged account of science must go beyond naïve inductive steps, due to very theoretical reasons, meaning with respect to our theory-building. This is to say that mature and complex scientific theories must also encompass and work with the statements about *unobservable* and *abstract* entities and events. Quine's developed picture of science is then quite different:

> The totality of our so-called knowledge or beliefs, from the most casual matters of geography and *history* to the profoundest laws of atomic physics or even of pure mathematics and logic, *is a man-made fabric which impinges on experience only along the edges*. Or, to change the figure, *total*

[7]One must also bear in mind the mere fact that, in English, the word "science" and the term "natural science" are sometimes used interchangeably.

[8]For informed analyses, see Peregrin (2016: 106ff), Roth (1983).

[9]Even for the elementary bird example above, it is essential to include a proviso, as Quine does, that our ancestors rely on the assumption that their future experiences will be the same as their past experiences. This assumption is also part of this collective, theoretical body (philosophers of science commonly refer to this fact by underlining the necessity of *auxiliary hypotheses*). We rely on these inductive generalizations all the time in our everyday life as well as in science, for example, when we assume/hypothesize from the present that the laws of nature were the same in the past, and will be the same in the future. Stephen Jay Gould (2002: 97ff) nicely shows how this "methodological assumption of temporal invariance for laws of nature" plays a vital role in evolutionary theorizing qua historical theorizing (2002: 102).

> *science is like a field of force whose boundary conditions are experience*. A conflict with experience at the periphery occasions readjustments in the interior of the field. Truth values have to be redistributed over some of our statements. Re-evaluation of some statements entails re-evaluation of others, because of their logical interconnections—the logical laws being in turn simply certain further statements of the system, certain further elements of the field. Having re-evaluated one statement we must re-evaluate some others, whether they be statements logically connected with the first or whether they be the statements of logical connections themselves. *But the total field is so undetermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to re-evaluate in the light of any single contrary experience. No particular experiences are linked with any particular statements in the interior of the field, except indirectly through considerations of equilibrium affecting the field as a whole*. (Quine 1961c: 42, emphasis mine)

Another metaphor that Quine famously uses to describe the totality of our knowledge is the "web of belief," insomuch as he sees the word "belief" in some respects better than the word "knowledge."[10] Quine's notion of *science* is thus very idiosyncratic. It does *not* represent the totality of established scientific disciplines or selected methods. Rather, it represents the totality of our knowledge/beliefs, i.e., our total theory of the world, our "total world-picture" (Quine 1961b: 17; also see again Quine 1961c: 42ff). Quine in effect holds that our common sense, science, and rationality itself comprise one cognitive/epistemic continuum. Such a notion was at that time very original (and is often not appreciated enough even today). It makes explicit the tension between the underlying epistemic continuum of all human inquiry on the one hand, and the ordinary disciplinary/methodological pluralism parasitizing on this continuum on the other hand.[11]

[10] Knowledge, in Quine's mind, strongly connotes epistemic *certainty*. See the headword "knowledge" in *Quiddities* (Quine 1987: 108ff). So, "beliefs" are for Quine simply "sentences held true."

[11] With respect to the various interpretations of Quine, it is indicative that he is often understood as arguing for the unity-of-science dictum (see, for example, Davidson in Borradori 1994; compare Quine 1995b). However, as I try to further argue in this essay, the situation is much more complicated. Quine indeed argues for a kind of unity of "science;" but it is definitely not a unity of method nor any kind of disciplinary unity. In my reading, that is exactly the respect in which Quine is original and often misunderstood. Section 2 of this essay discussing "historiography," qua a scientific discipline, can be then read as a specific case study of the productive tension between the unity and disunity of science, qua our total science. All in all, Quine might not be the first to make a case

This picture does not need any additional definition of natural science, nor the distinction between natural/social, hard/soft, or observational/descriptive science. A discipline fits into our total science if it adds to or accords with the rest of our system of beliefs (sentences). It seems fair to say that, according to Quine, the pivotal distinction for science cuts across disciplines and methodologies, and concerns only given bundles of *theories with direct/indirect empirical consequences*, where the theories with direct empirical consequences then enable the testing/falsification of these theories *taken as a whole*, since the empirical significance is "diffused through the system":

> The scientist does indeed test a single sentence of his theory by observation conditionals, but only through having chosen to treat that sentence as vulnerable and the rest, for the time being, as firm. This is the situation when he is testing a new hypothesis with a view to adding it, if he may, to his growing system of beliefs. (Quine 1981: 71–72)

Dismantling the empirical from the theoretical (or, for example, the analytic from the synthetic; the factual from the linguistic) is thus, according to Quine, always done against the background of a theory-driven choice made for some specified purposes (for example, explicatory and explanatory purposes). It is a historically contingent and culturally conventional decision. In short, such a dismantling has a practical force only ad hoc.

I consider this as one of the most critical effects of Quine's re-configuration of science; one should shift the attention from *theorizing the scientific method* to *actual practices of theory-building* within and across the diverse contemporary disciplines. As Quine sarcastically remarks: "Boundaries between disciplines are useful for deans and librarians, but let us not overestimate them—the boundaries," (Quine 1976: 76). Or again in a more solemn way: "Science is neither discontinuous nor monolithic. It is variously jointed, and loose in the joints in varying degrees," (Quine 1975: 314). If one, for any reason, thinks science benefits

for, for example, a strictly a posteriori approach to scientific theorizing. But he is one of the first thinkers who accepted that when science is understood as not having clear boundaries, our conception of (empirical) inquiry and its normative reflection must be re-configured altogether (so inclusive of philosophy). That is the whole point of his epistemology naturalized; it is the synergistic effect of all Quine's re-configurations that ultimately makes the real meta-theoretical difference.

from some form of hierarchization, their target should be chosen bundles of theories, not disciplines and methodologies.

The substantial consequence of this modified picture is that not all scientific theories can be directly justified through some kind of experiment; not all science can be tested. The prediction serves as the ultimate checkpoint of science, not as a guiding principle of its every step. Some theories, typically the ones with very indirect empirical consequences, are built only with respect to the overall economy of our total science. "Positivistic insistence on empirical content could, if heeded, impede the progress of science," (Quine 1995a: 49). For these reasons, Quine cannot think of prediction as being the standard of scientific practice. Prediction rather creates one of the boundaries of rational space in which science operates. That is the furthest Quine can be pushed towards the demarcation criterion. In *Pursuit of Truth*, Quine explicitly employs Wittgenstein's game metaphor and states:

> When I cite predictions as the checkpoints of science, I do not see that as normative. *I see it as defining a particular language game*, in Wittgenstein's phrase: the game of science, in contrast to other good language games such as fiction and poetry. A sentence's claim to scientific status rests on what it contributes to a theory whose checkpoints are in prediction [. . .] Prediction is not the main purpose of the science game. It is what decides the game, like runs and outs in baseball. *It is occasionally the purpose, and in primitive times it gave primitive science its survival value. But nowadays the overwhelming purposes of the science game are technology and understanding*. (Quine 1992: 20, emphasis mine)

Unfortunately, Quine never seriously elaborates on this Wittgensteinian picture of science and leaves it underdeveloped. However, I consider the game metaphor for science very illuminating, at least for three reasons. The first reason is conceptual; the concept of game is the paradigmatic instance of Wittgenstein's family resemblance, i.e., the concept of game creates a conceptual unity despite many factual and methodological differences among different games/sciences. The second reason is that such a conceptualization easily accommodates and acknowledges the historical nature of science, ipso facto, human rationality in Quinean reading.

Imagine, for instance, your favorite *sporting* game: there has always been a space to modify the rules; introduce and/or improve the equipment; the players and teams are free to create a whole range of specific

strategies and their reasons for playing the game vary as well; playing to stay fit differs from playing to become the world champion. "The nature of the play into which prediction integrates is left unspecified," writes Roth aptly Roth (1999: 106). Therefore, the standards of various scientific practices of organizing knowledge/beliefs are always tied to related, specific purposes. Quine himself explicitly mentions practical purposes (technology) and intellectual purposes (understanding). In this particular respect, Quine's notion of science/rational inquiry is undeniably one of a pragmatist (for example, see Quine 1961c: 46; compare Godfrey-Smith 2014).

Lastly, the third reason is that the game metaphor helps us to understand that Quine's naturalization of epistemology is not a dissolution of the normative dimension of epistemology. If one is able to articulate the purposes, the reasons why one plays a game, one can adjust one's strategies and practices accordingly. No more is needed (see Quine and Ullian 1978: 134–135). Quine merely insists that the standards of scientific inquiry are to be found, as every unit of knowledge, within our intertwined, ever-changing web of belief. That is what Quine means when he declares that naturalized epistemology is just "science self-applied" (Quine 1975: 293; compare Roth 1999: 104).

I contend that, against this background, one can fully appreciate the *diachronic* and *dynamic* view of science Quine, qua philosopher, sticks to when he writes things like the following often-quoted paragraph:

> I see philosophy not as an a priori propaedeutic or groundwork for science, but as *continuous with science*. I see philosophy and science as in the same boat—a boat which, to revert to Neurath's figure as I so often do, we can rebuild only at sea while staying afloat in it. There is no external vantage point, no first philosophy. *All scientific findings, all scientific conjectures that are at present plausible, are therefore in my view as welcome for use in philosophy as elsewhere*. (Quine 1969b: 126–127, emphasis mine)

To summarize: *science*, in Quine's reading, represents our total and contingent theory of the world. From a diachronic as well as synchronic perspective, this theory of the world is the result of our rational/pragmatic attempts to organize our experiences into a coherent whole; into the web of belief. Therefore, some beliefs in this web have empirical consequences only indirectly, and their scientific status (empirical content) is *derived* from their connection to other beliefs that have empirical consequences (that can be in principle tested/falsified). The rationality

(the possibility of fallibility) of this process is grounded partially in the natural origin of our cognition, as well as in intersubjective languages (which are both understood as co-evolving with our environment); and partially in self-correcting efforts driven by our explicit practical as well as intellectual demands. *Quine simply takes for granted that science, and so all our epistemic theories, are historically dynamic*.

At this point, I want to further accentuate that, due to semantic holism and the historically dynamic conception of science to which Quine is committed, his notion of evidence/experience is *intratheoretical*: "The unit of empirical significance is the whole of science," (Quine 1961c: 42). By this move, Quine turns all the prominent (logical) empiricists on their heads, since his version of empiricism is radically anti-foundationalist. Roth interprets this stance instructively as follows:

> For a variety of scientific theories (broadly construed, so as to include the social sciences) serves to determine just which experiences count and under what conditions they count as relevant for assessment purposes. Science ultimately delimits, e.g., how many senses there are, how they function, and so what even the senses properly so-called could provide qua evidence. Both questions give rise to worries about how diffuse the notion of the empirical becomes once it cannot be restricted to terms or simple statements. (Roth 2020: 124)

Quine, in his own way, tried to dissolve these epistemic worries by pushing back against the assumption that our observations are always theory-laden through and through, and ends up talking about "degrees of observationality" (see Quine 1993: 108; Quine 1981: 71; compare Zammito 2004: 15ff, for a critical analysis). Regardless, recollect that, for Quine, our positing of "things" in the world, meaning our projections of chosen categories/concepts on(to) the world, is indispensable for any (observational) knowledge. Our "experiences" would otherwise amount only to something akin a blooming, buzzing confusion. Put another way, there is no genuine observation without conceptualization, i.e., without language(s).

All postulated entities are our theoretical constructs, they are contingent, cultural *posits* of our theories developed to accommodate and make sense of our casual interactions with the world (Quine 1961c: 44). In this regard, Quine is an adamant anti-realist; there is no "integral reality" behind this theoretical veil: "So far as evidence goes, then, our ontology is neutral. Nor let us imagine beyond it some inaccessible reality. The

very terms 'thing' and 'exist' and 'real,' after all, make no sense apart from human conceptualization. Asking after the thing in itself, apart from human conceptualization, is like asking how long the Nile really is, apart from our parochial miles or kilometers," (Quine 1993: 113). On that premise, the very conception of *nature* also emerges from within our theorizing. As Quine himself puts it:

> Our theory of nature grades off from the most concrete fact to speculations about the curvature of space-time, or the continuous creation of hydrogen atoms in an expanding universe; and our evidence grades off correspondingly, from specific to broadly systematic considerations. Existential quantifications of the philosophical sort belong to the same inclusive theory and are situated way out at the end, farthest from observable fact. (Quine 1969b: 98)

This implies that causal contexts/empirical contents do not simply force upon us conceptual contents, even in the case of our most basic concepts. The conditions of applicability of these concepts vary with respect to the cultural/linguistic communities using them. Hence, what will be considered as an observation will vary too: "One man's observation is another man's closed book or flight of fancy," (Quine 1969a: 88). However, Quine perceives this issue as a mundane fact resulting from diverse forms and degrees of cultural conditioning, which also explains his long-lasting interest in and insistence on the role of language learning and habit formation for science (for scientific language):

> For by our definition the observation sentences are the sentences on which all members of the community will agree under uniform stimulation. *And what is the criterion of membership in the same community? Simply general fluency of dialogue*. This criterion admits of degrees, and indeed we may usefully take the community more narrowly for some studies than for others. What count as observation sentences for a community of specialists would not always so count for a larger community. (Quine 1969a: 87, emphasis mine)

Also, although Quine is generally considered as the intellectual father of all current forms of naturalism, naturalism is also defended as a metaphysical/ontological doctrine nowadays (see, for example, Bryant 2020). Quine's naturalism is, ironically enough, ontologically neutral by definition. Existential statements and specific ontological positions must, in order to be naturalistic in the Quinean sense, be formulated

from within our science; from within our "provincial conceptual scheme and scientific epoch," not vice versa.

For this reason, Quine himself can embrace, for example, physicalism as "a scientific position" (Quine 1995b: 257), hence a position cohering with and contingent on our developing total world-picture. But specific statements of physicalism are, as every other statement, prone to be re-evaluated in light of the given evidence, so physicalism could, in principle, be falsified. Quine's naturalism is conceptually as well as ontologically flexible; "If I saw indirect explanatory benefit in positing sensibilia, possibilia, spirits, a Creator, I would joyfully accord them scientific status too, on a par with such avowedly scientific posits as quarks and blackholes," (Quine 1995b: 252); the same holds even for Quine's empiricism, ipso facto, Quinean naturalism itself (see Quine 1992: 19–21). More serious attention paid to Quine's idiosyncratic, post-positivist notion of science could easily dispel the anxieties associated with his naturalizing project in epistemology. As Burton Dreben nicely underscores, Quine does not espouse any reductionist visions. Quine's physicalism is deliberately minimalistic:

> By "physical" Quine means, roughly, "materialistic as opposed to mentalistic." *He does not mean fully expressible in the vocabulary of (contemporary) theoretical physics*. His "physicalism" is what Hookway [1988: 77] has called the "disappointing" kind. Quine never intended to say anything new or interesting about "physicalism" and never attempted to fully characterize what it is for a term, notion, or concept to be "physical." (Dreben 1992: 307, emphasis mine)

In a letter responding to Hookway, Quine declares: "My basic position early and late is empiricism, and hence prediction as touchstone. *Physics enters my picture only because, in my naturalism, I take the current world picture as the last word to date. If evidence mounts for telepathy or ghosts, welcome. Physicists would go back to their drawing boards*. Whether to call their resulting theory physics still, on determinationist grounds, is a verbal question," (Quine in Dreben (1992: 308), emphasis mine). Against this background, I claim that it is symptomatic of our intellectual climate that Quine is more often caricatured as a philosopher with scientistic leanings, as opposed to, for example, relativistic ones.

In the following section, I indicate what Quine has to say about writing history from within science as he imagines it. By doing this, I

also wish to illuminate Quine's stance on the pragmatic and explanatory value of all non-experimental theorizing.

2. Historiography and the Art of Hypothesis-Making

Historical sciences (for example, historiography as well as evolutionary sciences) are typically considered as methodologically distinct from experimental sciences, since they paradigmatically do not rely on direct observations, predictions, law-like generalizations, let alone subsumptions under general laws. That raises serious doubts regarding the epistemic status of historical theories/explanations (for contemporary examination concerning historiography, see Kuukkanen 2015; Currie 2018; Rosenberg 2018; Roth 2020; for a historical examination, conceptual overview, and further references concerning evolutionary science, see Hubálek 2021).

As I have already pointed out in the first section, Quine does not want to exclude historical theories from our total theory of the world, even though he must be aware of the peculiar nature of historical theorizing. The fact is indicative that Quine feels obliged to mention the case of historiography, while still dealing with the headword "prediction" in *Quiddities*, from which I have already quoted. Quine's take on historiography is then also as feasible to interpret as his subtle take on non-experimental modes of inquiry.[12]

> *Hypotheses about history, even of the remote past, are part and parcel of science in the inclusive sense, and the arbiter is still prediction*. Occasionally this is evident, as when a hypothesis about ancient history implies the findings of some future excavation. More often the historical proposition will link up only very indirectly with prediction, through participating in a large, cohesive section of scholarly and scientific lore and common sense which has its ultimate links with observation categoricals and prediction *somewhere outside the historical quarter*. (Quine 1987: 162, emphasis mine)

In his last book, *From Stimulus to Science*, Quine performs a very similar interpretive procedure. While depicting the nature of the so-called soft

[12] Of course, one might argue that there are even non-experimental modes of inquiry, such as logic, mathematics, philosophy, and arguably even some parts of physics. I agree. I simply think that Quinean scholars typically discuss them, and that some conclusions I draw for historiography will hold for some of their goals too.

sciences, he once again utilizes the case of historiography to stress his thoughts on the conception of science without direct prediction at hand.

> In softer sciences, from psychology and economics through sociology to *history* (*I use "science" broadly*), checkpoints are sparser and sparser, to the point where their absence becomes rather the rule than the exception. Having reasonable grounds is one thing, and implying an observation categorical is another. Observation categoricals are implicit still in the predicting of archaeological finds and the deciphering of inscriptions, *but the glories of history would be lost if we stopped and stayed at the checkpoints*. (Quine 1995a: 49, emphasis mine)

I now take Quine's delineation of science as a starting point and extract two conclusions for historical theorizing. In addition, I would like to state here that Quine uses a vocabulary that might sound obsolete for most of today's philosophically-minded historiographers and/or philosophers of science, because he still exploits concepts like "prediction," "hypothesis," and "falsification." I use them here primarily to authentically reconstruct Quine's position. And Quine uses them in his own specific, re-configured manner where, for example, "prediction" refers to an organism oriented in nature, as well as to exclusively human theory-building (science). Below, I say a bit more on how Quine exploits the word "hypothesis." Recall also that his notion of evidence/experience is intratheoretical. Thus, for example, when one reads the word "falsifies," one can also read the phrase, "makes less plausible."

Firstly, I present the simpler case of historical theorizing that can, in principle, include the success of predictive reasoning. Secondly, I focus on the more challenging case where historical theories connect with prediction very indirectly or seemingly not at all.

> (1) Some historical theories will simply yield observation categoricals that can, in principle, be tested/falsified (by our observation). I present them in the form of their potential falsifiers.

- The theory that Vincent van Gogh was killed/murdered can be falsified by the discovery of his suicide note.

- The theory that feathers qua evolutionary traits are adaptations for flight can be falsified by the fossils indicating that feathers are older than birds.[13]

These inferences are unproblematically compatible with Quine's "game of science," as they connect the historical theories with the edges of our web of belief that can be interconnected with, and in principle falsified by, our evidence. In these cases, the hypothetico-deductive inference is principally used to answer a *what-question*[14] while inquiring into the particular matters of fact ("what was the case?;" "what happened?"). But it is not necessarily used to explain these facts, i.e., to answer a *why-question*.[15]

> (2) More often, historical theories cannot be, in principle, tested/falsified by our evidence; one cannot formulate genuine prediction (predict *direct* observation). This means that these theories refer to *events* (entities) that typically have their causes/reasons, as well as immediate effects, buried in the past, with no clearly discernible causes/reasons and effects in the present. Put another way, these historical theories are *essentially* underdetermined by available evidence. I present such events as potential historical research questions.

- Why did Vincent van Gogh cut off his ear?
- Why have birds evolved the disposition to fly?

In these cases, one is principally attempting to answer a why-question. And the explanatory challenge here is then twofold. The uniqueness and contingency of historical events detach them from the predictive and experimental inferences and practices, plus history as a temporal factor leads to fragmented or even wholly absent evidence (relevant matters of fact). These epistemic challenges related to historical research are currently widely recognized, and *scientific* explanation of the past is typically understood as a fight against the essential underdetermination of historical theories (see, for example, Currie and Turner 2016 for an overview; compare Gould 2002: 102).

[13]This is an actual evolutionary conclusion, see Gould and Vrba (1982). The fossil record indicates that feathers, as we know them today (i.e., biologically *homologous*), evolved already in terrestrial dinosaurs.

[14]Or alternatively a when-, where-, who-question.

[15]Or alternatively a how-question.

Quine insists that science is able to accommodate these underdetermined why-questions, and maybe even must, otherwise "the glories of history would be lost." Still, the question here is "how?" A very short answer could be that theories plausibly answering historical why-questions simply give us a kind of *understanding*,[16] insomuch as Quine also lists understanding as one of the goals of our contemporary science. Quine himself does not sufficiently underscore the fact that he quite often advances answers to historical why-questions, for example, by offering evolutionary explanations (his often-discussed essay "Natural Kinds," which I have already referred to here, is an illustrative example of that).

In the previous section, I showed that Quine naturalizes our present cognitive standards of similarity (the success of inductive inferences in general) by invoking their past survival value. He makes sense of our cognitive capacities by an evolutionary/historical explanation (compare also Quine and Ullian (1978: 136–138), for a similar explanation related to moral capacities). In addition, there is also the obvious historical continuity of our cultural practices and conceptual frameworks. The re-evaluation of some statements/theories within our web of belief, and their subsequent re-adjustment, happens synchronically as well as diachronically. It cannot be otherwise. One must always imagine the web of belief, not only with its *horizontal* axis but also with its *vertical* axis.

Again, Quine is not often clear enough on this matter, because he predominantly discusses synchronic scientific inquiries (however, see the headword "Kinship of Words" in *Quiddities* for an example of Quine's historical sensitivity). Moreover, I also suspect that because Quine habitually thinks that to gesture towards our pragmatic choices and considerations, or to construe scientific theorizing as a product of self-conscious common sense, will do by itself. *Interpreted as such, for Quine, historical theorizing becomes indispensable for understanding/explaining how we, natural and cultural beings, wind up where we are.*

[16]However, the concept of *understanding* is not a transparent one. At a minimum, one would have to specify its relation to the concept of explanation. See, for example, a brilliant book *Understanding Scientific Understanding* written by DeRegt (2017). Quine seems to use the term "understanding" rather rhetorically, and most of the time synonymously with the term "explanation," which he uses for identifying causes (see, for example, Quine and Ullian 1978, 111–12), and at other times he seems to use the term "understanding" as an explanation with some pragmatic value.

However, to stay true to Quine's own view on science, this general appeal to the concept of understanding/explanation would certainly not even satisfy our common-sense perception of scientific inquiry; one would not satisfactorily differentiate the game of science from the game of fiction in the case of historical theorizing. Put another way, there is generally no doubt that the continuity of the past to the present is formative as a temporal relation; the doubt looms over the possibility of cognitively grasping this continuity in a non-fabulative way. What is at stake is our epistemic relation to the past, especially in the essentially underdetermined cases. Without an intelligible epistemic relation to this past, significant parts of it would become a historical screen on which anything can be projected (or at least on which anything could be intentionally distorted, for instance, politically). Thus, one must go a little further with Quine.

What does Quine mean when he says that historical theories are connected to prediction indirectly "through participating in a large, cohesive section of scholarly and scientific lore and common sense which has its ultimate links with observation categoricals and prediction somewhere outside the historical quarter?" Or when he contrasts "having reasonable grounds" with "implying observation categorical?" These claims are, I suggest, an illustration of the normative part of naturalized epistemology/science which, in turn, becomes: "the art of guessing, or framing hypotheses [. . .]. [But as Quine adds], creating good hypotheses is an imaginative art, not a science. It is the art of *science*. Normative epistemology is the art or technology not only of science, in the austere sense of the word, *but of rational belief generally*," (Quine 1995a: 49–50, emphasis mine). By referring to the "artistic" nature of hypothesizing, Quine makes it clear that there is no algorithm for creating good hypotheses.

Hypothesis-making is an integral, imaginative part of the constant and historically continuous process of developing our web of belief. True, to today's ears, the term "hypothesis" connotes with hypothesis-testing, and Quine, of course, *primarily* works with the term "hypothesis" in this modern and technical manner too, as I exposed in a previous section. That being said, Quine never seems to deviate seriously from his idiosyncratic view on science, which is driven, inter alia, "by our efforts to organize beliefs into a coherent whole"—which one might

paraphrase at this point as "by the scientific art of hypothesizing." So, *secondarily*, Quine also uses "hypothesis" with its original connotation as "supposition"/"uncertain belief." In *The Web of Belief*, he together with Joseph Ullian, state the following: "In a word, hypothesis is guesswork; but it can be enlightened guesswork," (Quine and Ullian 1978: 65).

Quine and Ullian then catalog broad epistemic virtues that can abet our hypothesizing *in relation* to our total world-picture (see Quine and Ullian 1978: 66–80). For instance, they identify the virtue of *modesty*; hypothesis *A* is more modest than *A* and *B*, taken as a united hypothesis (i.e., where *A* does not entail *B*). Also, hypothesis *A* is more modest than *B* if hypothesis *A* assumes happening(s) that are more probable or usual with respect to our web of belief (compare Quine and Ullian 1978: 68). Hence, the first possible step to enlighten our guesswork is to narrow down the list of plausible hypotheses by evaluating them by their own structural efficacy, and the second possible step is to evaluate the hypotheses through the lens of our total science, i.e., through our standards of "rational belief generally."

Besides that, as Quine and Ullian ingeniously argue, ordinary beliefs become hypotheses by the very reasons for which one entertains them. One engages in hypothesis-making as one presupposes that, if a given hypothesis is proved testable, or just complementary with our total world-picture, it would also explain some of the circumstantial matters of fact one already believes in (Quine and Ullian 1978: 66).

> Hypothesis, where successful, is a two-way street, extending back to explain the past and forward to predict the future. What we try to do in framing hypotheses is to explain some otherwise unexplained happenings by inventing a plausible story, *a plausible description or history of relevant portions of the world*. (Quine and Ullian 1978: 66, emphasis mine)

To step down on a more concrete level, the very reasons for formulating hypotheses draw on or are deduced from other previously held hypotheses/beliefs; one simply cannot think (or build theories) in a cultural and conceptual vacuum. And, of course, some of these "hypothetical beliefs" can be connected with either other beliefs with indirect empirical consequences or directly with our observations. This is why the diachronic and dynamic aspect of human science is vital. Our partially inherited and partially invented—when viewed from a time-anchored perspective—total world theory always serves as the "reasonable ground" from

which one must start reasoning, and simultaneously, as the very set of standards for our reasoning. This once again underscores Quine's all-inclusive conception of science that is in mutual relation to our everyday reasoning (common sense). Consider in this light the following passage:

> We talk of framing hypotheses. Actually we inherit the main ones, growing up as we do in a going culture. The continuity of belief is due to the retention, at each particular time, of most beliefs. In this retentiveness science even at its most progressive is notably conservative. [. . .] But the going culture goes on, and each of us participates in adding and dropping hypotheses. Continuity makes the changes manageable. Disruptions that are at all sizable are the work of scientists, but we all modify the fabric in our small way, as when we conclude on indirect evidence that the schools will be closed and the planes grounded or that an umbrella thought to have been forgotten by one person was really forgotten by another. (Quine and Ullian 1978: 81–82)

This all clearly holds for the case of historical research as well. This is something that is standardly done when historical research is being conducted. Historians attempt to explain Van Gogh's actions not only in the consistency of already existing information about him and about his milieu, but also in the light of our developing total science, for example, in the light of chosen psychological/psychiatric/medical theories, or other relevant theories produced by disciplines conducting synchronic research (for useful overview and further references, see Turnbull (2022); see also Arenberg, Di Maio, and Baden (2020); Voskuil (2020); Dasgupta et al. (2022); the amount of literature about Van Gogh is massive, so I deliberately choose some recent works here).

The same applies in the case of the evolution of birds. Evolutionary scientists base their inferences about evolutionary history on facts/theories from genetics, paleontology, comparative morphology, and similar disciplines, as well as on other more specific evolutionary theories. From where we stand now, that is from the perspective of our contemporary total science, the dominant meta-theory (paradigm) in evolutionary theorizing is still Neo-Darwinism, with its emphasis on natural selection, and the concepts of adaptation, exaptation, and spandrel.[17]

[17] More complicated, but simultaneously interesting and important, is the case of human evolution and/or history, since the possibility to conceptualize cultural history using

So, when done right, the diachronic and synchronic development of our web of belief is in a dialectical relationship. When answering any what- and why-question, one is guided by diachronically upheld beliefs and standards, as well as by direct or indirect synchronic observations and/or experiments. But, in principle, every belief is prone to be re-evaluated, for example, in the light of given falsifying evidence; and which experiences will count as evidence can be re-considered by re-evaluating the very assessment standards. Our scientific hypothesizing (including our historical guesses) is then in this particular sense always empirically and theoretically guided.

Nonetheless, on the one hand, the fact that our (historical) hypotheses with indirect empirical consequences can be connected/made compatible with other beliefs from different disciplines, or areas within our web of belief, and even potentially interconnected with beliefs having direct empirical consequences, is *not* by itself an argument for their truthfulness, in any philosophically interesting sense of the term. The essential underdetermination of the vast majority of historical theories will remain unbeaten by these procedures, too.[18] Thus, for naturalists, it is no surprise that alternative competing historical explanations of the same past happenings exist.

On a more positive note, these synthetizing procedures create the conditions of possibility to determine which hypotheses about the past are more plausible and which are less plausible (in the same cases also, for example, which are more and which less probable). They allow historical theories to participate in the Quinean rational game of science; they prove that it is possible to write history *also* from within science.

evolutionary theories is still a debated one. For a classic work on this topic, see Fracchia and Lewontin (1999); for an unorthodox yet biologically motivated piece, see Portmann (1990); and to track the current debate, see Richerson and Christiansen (2013); and Heyes (2018). Also, Stovall (2015: 16ff) offers a focused analysis of Darwin's own "hypothesis" about the evolutionary past with respect to his theory of natural selection.

[18]This does not seem that problematic, since a certain degree of underdetermination is characteristic even for non-historical inquiries, which is taken for granted in the current philosophy of science and Quine, of course, acknowledges it, too. Quine considers our total theory of the world underdetermined as a whole. See, for example, Quine's reply to Chomsky in Quine (1975: 302ff).

Resumé: Scientism in Reverse

Does Quine have any scientistic leanings? I argued that his notion of science does not privilege *natural* sciences per se, meaning experimental methods and observations, as the only acceptable and appropriate way of producing knowledge (of scientific theory-building). Quite the opposite, as I have demonstrated, Quine actively denies this assumption. In the collection of essays published in 2000 and put together on the occasion of his 90th birthday, Quine responds to a text commenting on his epistemology and laments: "It is awkward that 'science,' unlike *scientia* and *Wissenschaft*, so strongly connotes natural science nowadays," (Quine 2000: 411).

The main aim of Section 1 and Section 2 was to reconstruct Quine's conception of science, and his subsequent views on writing history. My main motivation for this interpretative exercise was that Quine is often considered an intellectual father of contemporary forms of naturalism, which is sometimes understood and defended as a scientistic and/or physicalist doctrine. However, my analysis shows that Quine has a very inclusive and idiosyncratic conception of science that, inter alia, incorporates all the so-called soft and social sciences, and is ontologically neutral. I have also argued that Quine's conception of science as our total world-picture can accommodate historical theories, inclusive of the essentially underdetermined historical theories. Thus, these two sections can also be read as a case study analysis of Quine's take on all non-experimental modes of scientific inquiry. To encapsulate, without understanding Quine's specific conception of science, one cannot properly understand his natural*ism* or pragmat*ism*, or so I argue.

However, in keeping with Quine, is there a way to acquire factual knowledge apart from science qua our total theory of the world? No, there is not. But it is rather an acknowledgment of the limitations of our science, not the opposite. It is primarily the acknowledgment that science is our best tool for rationalizing beliefs. Science simply exemplifies rationality (especially inductive but *also* deductive and abductive inferences). Put another way, if our science has co-evolved with our rationality (culture and conceptual frameworks), then science is a man-made, cultural tool to manage and manipulate our environment. It cannot be a tool to review the man-independent nature of our past

and present world. Or, to be less presumptuous, claiming so would require different, additional arguments. I am of the view that to simply assume that just because "science works" (i.e., is technologically very effective), it therefore must be in touch with something like "the reality in itself" is against the idea of Occam's Razor.

At any rate, this is both a limitation and a liberation of our epistemic condition (compare Quine 1995b: 256–257). Liberalizing is the fact that naturalized epistemology does not need to fix any method or logic of science. Naturalism is a methodologically and metaphysically opportunistic epistemological project. That is, at the same time, its limitation insomuch as Quinean naturalism intentionally steps back from identifying a historically invariant nature of science and (scientific) knowledge. According to Quine, there are no epistemic certainties nor unconceptualized givens. However, despite that, our common sense as well as science rely on the historically accumulated belief system guiding and grounding our epistemic cultures. Absent these "certainties," empirical science would not be possible. "If experience is the ground of our certainty, then naturally it is past experience," (Wittgenstein 1969: 275). Still, history also proves that such a ground is, in fact, shifting ground. This all re-configures and also creates wholly new problems and challenges for our scientific theory-building.

I suspect that, for many thinkers, the distinction between fact and fabulation (or even literary fiction) one is left with after Quine's naturalization of epistemology will not be sharp enough. For instance, one might be able, in principle, to compose an alternative fictitious historical theory/explanation of a given event that fits the available evidence and/or is just compatible with our current total world-picture. Quinean naturalists can, however, embrace this problem as an empirical, and in fact pragmatic, challenge which can be dealt with only from within the historiographical practices working with anything our ongoing total science has to offer. True, building essentially underdetermined theories about historical what- and why-questions is a difficult task, but no more difficult than building any other theories with indirect empirical consequences.

I thus contend that historians, like any other specialists, must first answer a more difficult question: what is the ultimate purpose of their inquiry? Or as Hayden White puts it in his seminal paper, *The Burden*

of History (where he, among many other things, also makes a plea for "methodological and stylistic cosmopolitanism" in historiography):

> Is there any reason why we ought to study things under the aspect of their past-ness rather than under the aspect of their present-ness, which is the aspect under which everything offers itself for contemplation immediately? (White 1966: 132, compare 130)

Although, with Quine's naturalism, we all lose the *philosophical* antidote to bad forms of theorizing, apart from the standard practice of citing what one takes the facts to be and what is taken to be most plausible, no one seems to be theoretically or pragmatically paralyzed in this epistemic condition; naturalistic historians can benefit from including and experimenting with diverse methods and styles of inquiry, and naturalistic scientists can freely utilize various historical theories (for example, the histories of their respective disciplines).

That is where the normative part of the very process of naturalizing epistemology itself helps but also stops. It is the therapy one no longer needs when appreciating that there is no extra-scientific perspective, and that further specific inquiries, inclusive of their normative implications, must be conducted and confronted from an intra-scientific perspective.[19] Put another way, further inquiries, for example, into the specifics of historical theorizing, such as specific theory choices and specific analyses of historical explanations/evidence, are a going concern of respective scientific disciplines and their theoretical as well as practical aims.

However, the word "science" must be read with Quine in its reconfigured, all-inclusive sense, viz., as our total science/total world-picture. And not simply as an interchangeable term for "natural science." What we need is scientism in reverse; we need to be methodologically opportunistic and disciplinarily intersectional in practice.[20] In this

[19] I frame here the issue analogically to Roth (1999: 100, 105). Intra-scientific perspective here also simply means *assumption-laden* perspective. Equivalently, one could take extra-scientific perspective to be some kind of assumption-free perspective.

[20] Moreover, together with Ullian, Quine writes that there are obviously other language games, such as fiction and poetry, that also "teach us" and "bring enlightenment," (see Quine and Ullian 1978: 4). So, although, according to Quine, *science* has a monopoly on the fact-stating discourse, he does *not* deny, contra a traditionally conceived scientism, that one can learn something about the world from other forms of discourse. To examine the specific reasons for such a claim is beyond the scope of this essay. However, the general reasons are present here; Quine dismisses any *formal* demarcation criterion of science.

sense, Quine's naturalism does both humanize and historicize the whole domain of rational inquiry.

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That naturally leads to complex and context dependent overlaps between, for example, the factual and non-factual discourse. Science is thus not the only rational language game in town. As I have also emphasized here, Quine thinks that philosophy itself is (methodologically) continuous with science, but that does not mean that philosophy does not pursue different aims. Quine does not say much on this issue but when he does, he seems to opt for this possibility. That is to say, Quine does not deny that philosophy, qua an intellectual discipline, still can have a certain kind of autonomy.

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