

Historicizing Naturalism: Mill and Comte

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There are rarely stark discontinuities in the history of philosophy. Philosophers are raised into traditions of thought, and even when innovative, their work must respond to recognisable issues in recognisable ways. The naturalism of the nineteenth century is therefore broadly continuous with the naturalism of the seventeenth and eighteenth centuries – that of Hobbes, Locke and Hume – and inherits, from this tradition, a view of human thought and action as wholly part of a world subject to causal laws which can be understood by the methods of natural science.

That is not say, of course, that naturalism does not evolve in key ways during the course of the nineteenth century. Chief amongst the concerns of nineteenth century naturalism is an attempt to explore the theory's consequences when pursued throughout all domains of knowledge, and to investigate its foundations – to press naturalism forward, but also dig down into its roots. In this chapter, I offer an account of that aspect of nineteenth century naturalism, by focusing on the work of J.S. Mill and, to a lesser extent, Auguste Comte. Both philosophers have high ambitions for naturalism, aiming to offer a sweeping account of all of human knowledge in naturalistic terms. And both are, in their own way, also concerned to offer an explication of the grounds of naturalism. In the process of doing so, I shall claim, they are pushed towards a distinctively *historicized* naturalism.

This historicization of naturalism shall occupy a good deal of my attention in this chapter – for it seems, to me at least, that this aspect of naturalism in the nineteenth century is significantly underappreciated in the secondary literature, especially on Mill. The risk with offering this focus is, of course, that this dimension of Mill's naturalism is magnified – and that the impression is given that this is in some sense an all-consuming concern in Mill's theoretical philosophy. I certainly do not wish to make that claim. Indeed, as we shall see, though there is in an internal push towards historicized naturalism within his theoretical philosophy, Mill does not himself always see these issues clearly. The push towards this position is no less important for that, however – for it is only with a proper understanding of the historicist aspects of Mill's work that we begin to see its philosophic connections to *other* historicist thinkers of the period.¹

1. Mill, Naturalism and Knowledge

1.1 *The rejection of the a priori*

At the centre of Mill's philosophy stands a commitment to naturalism. Naturalism, as mentioned above, is taken here to be the claim that the world is governed according to the laws uncovered by scientific investigation – and that the human mind is wholly part of that causal order. The principal corollary of this claim is that, because facts about the mind and facts about the rest of the world stand in no *logical* relation to one another – but only, as with other natural objects, in *causal* relation (cf. Hume 1975: 25ff)² – there can therefore be no seamless inference from how we are predisposed to *think* about the world and how the world *is*.

Such an inference would only be warrantable, if we could know [...] that the universe of thought and that of reality, the Microcosm and the Macrocosm (as they were once called) must have been framed in complete correspondence with one another [...] but an assumption more destitute of evidence could scarcely be made. (*Examination*, IX: 68)

If the mind is a wholly natural entity, that is to say, there are “no truths cognizable by the mind's inward light, and grounded on intuitive evidence” (*Coleridge*, X: 125). There can, in other words, be no real knowledge *a priori* – all such knowledge must be gained *via* our interaction with the world.

I use the term “real” deliberately. We can, if we are aware of the meaning of the words involved, know *a priori* that “Every man is a living creature”, for instance (*System*, VII: 113). This is because no genuinely informative claim is contained in that proposition: it “asserts of a thing under a particular name, only what is asserted of it in the fact of calling it by that name” (*System*, VII: 115). It requires no knowledge of *the world* in order to know that every man is a living creature – only familiarity with the “conventions of language” (*System*, VII: 111). Such propositions, Mill terms “merely verbal” (*System*, VII: 109). They stand in contrast to “real” propositions, which “predicate of a thing some fact not involved in the signification of the name by which the proposition speaks of it; some attribute not connoted by the name” (*System*, VII: 115). It requires knowledge of *how things are* in order to know such propositions. “[T]hese, if true, add to our knowledge: they convey information, not already involved in the names employed” (*System*, VII: 116).

We cannot, then, gain any real knowledge *a priori*. What *are* the sources of our knowledge? Mill identifies two: “Truths are known to us in two ways: some are known directly, and of themselves; some through the medium of other truths.” The former, he claims, are the subject of “Consciousness”; the latter, the subject of “Inference” (*System*, VII: 6). We gain knowledge, that is to say, only *by* perception, and by inferences *from* those perceptions. As we shall see below, quite what the objects of direct perception are is a more complex and important issue in Mill's philosophy than is generally admitted. But given how little of what we know is result of direct perception – however such perceptions be conceived, they make up only a small fraction of our overall stock of knowledge about the world (*System*, VII: 9) – the most pressing question is what kind of inferences can lead to knowledge.

That question, of course, does not itself admit of a satisfactory answer *a priori*. To assume that we could know *a priori* which inferences lead to knowledge would simply be another mistaken instance of thinking that “truths external to the human mind may be known by intuition” (*Autobiography*, I: 233). What constitutes a good inferential move, Mill holds, can itself only be known on the basis of experience.

Principles of Evidence and Theories of Method are not to be constructed *a priori*. The laws of our rational faculty, like those of every other natural agency, are only learnt by seeing the agent at work. (*System*, VII: 833)

As such, a study of reasoning becomes a study of existing modes of knowledge acquisition – an examination of how human beings *do* gain knowledge in practice, and a critical reflection upon the methods they employ. This is, in broad outline, exactly the task attempted in the *System of Logic*: an investigation and analysis of the patterns of inference that generate new knowledge.

1.2 Induction

Mill claims that an inventory of our reasoning practices reveals one fundamental form of successful inference: “Inference, consequently all Proof, and all discovery of truths not self-evident, consists of inductions, and the interpretation of inductions” (*System*, VII: 283). What Mill means by ‘induction’ is clarified later:

Induction properly so called [...] may [...] be summarily defined as Generalization from Experience. It consists in inferring from some individual instances in which a phenomenon is observed to occur, that it occurs in all instances of a certain class; namely, in all which *resemble* the former, in what are regarded as the material circumstances. (*System*, VII: 306)

All instances of human knowledge, Mill claims, have their roots in this form of reasoning – that upon observing that $a_1, a_2, a_3, \dots a_n$ are P, we infer that some relevantly similar a_{n+1} is P. Enumerative induction, Mill claims, is the form of reasoning that underwrites the immense success of science in understanding the world and the laws that govern it. But it is also our method in everyday instances of knowledge acquisition. “[T]he most scientific proceeding can be no more than an improved form of that which was primitively pursued by the human understanding while undirected by science” (*System*, VII: 318).

An *improved* form, for induction is a self-refining method of reasoning about the world. Initial inductive investigations provide a basic understanding of the world, but also provides the data for an inductive investigation of induction itself. We can, inductively, establish on which occasions inductive inferences tend to be trustworthy.

Experience testifies, that among the uniformities which it exhibits or seems to exhibit, some are more to be relied on than others; and uniformity, therefore, may be presumed, from any given number of instances, with a greater degree of assurance, in proportion as the case belongs to a class in which the uniformities have hitherto been found more uniform. [...] This mode of correcting one generalization by means of another, a narrower generalization by a wider, which common sense suggests and adopts in practice, is the real type of scientific Induction. (*System*, VII: 319)

Induction's self-analysis leads to further understanding of the inductive process, which in turn improves the stock of inductive inferences to be inductively analysed. This process – which is key to the progressive nature of science – is, as Skorupski puts it, a “virtuous spiral” (Skorupski 1989: 23). In the *System of Logic*, Mill argues that it has resulted in sophisticated catalogue of methods for isolating causes and effects in nature.³

This progressive self-analysis, however, also leads to an explanation of *why* induction is a successful method of reasoning, for it reveals that nature is uniform and subject to general laws. That is simultaneously an inductive discovery, and the “ultimate major premise in all cases of induction” (*System*, VII: 309). For it only *because* nature is uniform, that we are warranted in inferring that a_{n+1} will be P, on the grounds that relevantly similar $a_1, a_2, a_3, \dots a_n$ are.

[T]he proposition that the course of nature is uniform, is the fundamental principle, or general axiom of Induction. It would yet be a great error to offer this large generalization as any explanation of the inductive process. On the contrary, I hold it to be itself an instance of induction, and induction by no means of the most obvious kind. Far from being the first induction we make, it is one of the last, or at all events one of those which are latest in attaining strict philosophical accuracy. [...] We should never have thought of affirming that all phenomena take place according to general laws, if we had not first arrived, in the case of a great multitude of phenomena, at some knowledge of the laws themselves; which could be done no otherwise than by induction. (*System*, VII: 307)

Mill's account of the workings of induction is perhaps the most detailed in the empiricist tradition – but it is remarkable for another reason, also. Mill, as we have seen, claims that induction is the method of inference that underwrites all real knowledge. It bears emphasis, though, that the scope of ‘real knowledge’ is significantly expanded in Mill's work. Insofar as *any* domain contains substantive claims, knowledge of propositions in that domain is, ultimately, founded on inductive inference. This includes disciplines which have traditionally been taken *a priori*, as well as knowledge of the ‘moral sciences’.

1.3 *The scope of inductive knowledge*

Mathematics, Mill claims, cannot be merely a collection of verbal truths, for it is genuinely *informative*, and tells us something about the world. In contrast to many in the empiricist tradition, then, Mill holds that mathematical propositions are ultimately *a posteriori*. That two plus one is equal to three is “not a definition of the word three; a statement that mankind have agreed to use the name three as a sign exactly equivalent to two and one; to call by the former name whatever is called by the other more clumsy name” (*System*, VII: 253). The proposition, rather, tells us something meaningful about how the world is constituted, and therefore must be known inductively. “[T]here is in every step of arithmetical or algebraically calculation a real induction, a real inference of facts from facts” (*System*, VII: 254). So, too, geometry. That we can draw a straight line connecting any two single points, for instance, is not a mere verbal proposition, but something that could only be learnt, ultimately, by means of induction.

Even the fundamental principles of logic, Mill argues, are established inductively. The Law of Non-Contradiction – he “cannot look upon [...] as a merely verbal proposition. I consider it to be [...] one of our first and most familiar generalizations from experience” (*System*, VII: 277). The Law of Excluded Middle is given a similar analysis (*System*, VII: 278). Whether or not these basic logical laws represent immovable constraints on how we *think* about the world – Mill regards this as very much an open question – he is clear that that we have no warrant for believing that these basic laws hold as basic constraints *on the world*, without having learnt this from experience (*Examination*, IX: 380–2).⁴

As would be expected, Mill also holds that our knowledge of the natural sciences is gained inductively – indeed, as we shall see below, it is the knowledge we have obtained in physics, chemistry and biology that are, for him, paradigm instances of the inductive method at work. More noteworthy, perhaps, is that he holds the same of the *human* world. We learn by inductive investigation that the human mind is governed by the laws of associationist psychology: “the theory which resolves all the phenomena of the mind into ideas of sensation connected together by the law of association” (*Blakey’s History of Moral Science*, X: 23). Ideas or sensations which are either (i) “similar” or (ii) “frequently experienced (or thought of) either simultaneously or in immediate succession,” come to be thought of together, and are eventually inseparably bound together in our mind (*System*, VII: 852). This provides an empirical account, Mill believes, of how human beings form complex ideas and beliefs about the world. But it also provides an account – by tracing the association of ideas with the idea of pleasure – of motivation and action. Inductive reasoning, that is to say, can provide us with a science of human behaviour.⁵

This is scientific knowledge of how human beings *do* act. Our knowledge of how human beings *should* act is gained in experience, also. This is not to say that Mill conflates the empirical and normative – he is quite alive to the fact that “[a] proposition of which the predicate is expressed by the words *ought* or *should be*, is generically different from one which is expressed by *is*, or *will be*” (*System*, VII: 949).⁶ But he nevertheless holds that how we *should* act can be only be discovered *a posteriori*.

[T]he sole evidence it is possible to produce that anything is desirable, is that people do actually desire it. If the end which the utilitarian doctrine proposes to itself were not, in theory and in practice, acknowledged to be an end, nothing could ever convince any person that it was so. (*Utilitarianism*, X: 234)

It would be a philosophic conceit to think that we could know, prior to observation and generalization about what human beings *do* desire, what is *desirable for human beings*. The principles of practical reason cannot be anchored in the *a priori*, and can therefore can only be learnt from observation. Discovering the patterns of action most conducive to the overall good for individuals must also be a matter of empirical investigation, as, therefore, is the question of how our social institutions should be. The traditional questions of moral and social philosophy, are to be answered *a posteriori* – which is to say, by means of induction.

When it is said, then, that Mill holds that no real knowledge can be gained *a priori*, but only on the basis of observation and generalization, the claim is a significant one. From logic and mathematics, through to the natural sciences and questions about what is desirable and how we ought to act individually and collectively, induction provides our basic means of obtaining knowledge and orienting ourselves in the world. This is not to say, of course, that deduction plays no role in reasoning. On the contrary, Mill holds that an ability to *organize* our reasoning deductively is key to mature scientific thinking (Ryan 1987: 3–20). It is only to say that any premise or non-verbal inference can only be as strong as the inductive justification that supports it.

1.4 Worries: Circularity and Hypothesis

As was noted above, Mill holds that we can only learn which modes of inference are warranted *a posteriori* – by studying existing modes of knowledge acquisition. Consulting how humans do, in practice, reason, it is revealed that enumerative induction is the sole successful mode of reasoning. One worry, however, should be obvious. No *general lessons* about the effectiveness of induction as a mode of reasoning can be drawn from data about our existing practices of knowledge acquisition, without there being an *inference* from that data to some conclusion. Induction can only be known to be a generally good form of reasoning by way of reasoning – *i.e.*, by Mill's own account, on inductive grounds. In this sense, the account is clearly circular.

This circularity concern should be distinguished from another, far more benign one – that in order for there to *be* successful inferences from which to generalize, induction would already need to be an established method of reasoning. Mill, quite rightly, denies this claim, arguing that there are many primitive acts of induction that do not require knowledge of the general validity of the principle of induction. “Many of the uniformities existing among phenomena are so constant, and so open to observation, as to force themselves upon involuntary recognition” (*System*, VII: 318). The deeper issue is, rather, that even *granted* that some such acts of primitive induction take place without awareness that induction is a warrant-conferring form of reasoning, the question remains as to how we *come to know*, in light of such primitive and unreflective inductions, that this form of reasoning is a good one. For *this*

knowledge is clearly reflective. Mill does not offer a detailed treatment of this issue. He is, however, hardly to be blamed for this – for the question is, in essence, about how reason rises to the level of self-consciousness.

As tempting as it is, however, we should be wary of thinking of this as a ‘lightning flash’ moment, either in an individual’s own development, or that of human reason itself. Such a view would be highly implausible. Though presented schematically as one epoch-making inference, the mindful recognition of enumerative induction as a warranted form of reasoning should rather be thought of as a change of view upon the world – one which represents a new way of engaging theoretically with the world, which emerges gradually and over time. How such shifts are possible, we shall investigate below.

A second worry relates to Mill’s claim that enumerative induction is the *sole* method of theoretically reasoning. Even permitting the claim that analysis of existing modes of knowledge acquisition reveals that induction is *a* warranted form of reasoning, why should we foreclose the possibility that there exist *other* warranted forms of reasoning? Mill, in fact, must admit this possibility. There can be no *a priori* guarantee that no other methods exist, and Mill must, in principle, be open to the discovery of such methods. As a practical matter, however, he denies that perhaps the strongest candidate – the method of “hypothesis”, or inference to the best explanation – is a genuinely warranting norm of inference. He claims that hypotheses about unobserved explanations made in an effort to account for our observations can provide useful suggestions for theoretical enquiry, but that warrant for belief can only be provided by reasoning based on the principle of enumerative induction. “[H]ypothesis, by suggesting observations and experiments, puts us on the road to that independent evidence if it be really attainable” (*System*, VII: 496, my emphasis).

The claim that inference to the best explanation does not generate belief-worthy claims about the world, independently of enumerative induction, is a questionable one. It is hard to resist the observation that agents *do* reason successfully and gain knowledge about the world by the method of hypothesis – which is of course Mill’s criterion for the validity of a method. But Mill does resist it, denying that any genuine instances of knowledge acquisition *have* been driven by the autonomous use of the method of hypothesis. In further support of his rejection of the method, he offers an underdetermination argument: that an inferred explanation “is not to be received probably true because it accounts for all the known phenomena; since this is a condition sometimes fulfilled tolerably well by two conflicting hypotheses” (*System*, VII: 500).⁷ As we shall see below, his treatment of the method of hypothesis has important consequences in his theoretical philosophy.

2. Mill, Comte and the History of Knowledge

2.1 *Naturalism and History*

It is significant that Mill’s study of epistemology takes the form of an enquiry into *human practice*. This is as it must be for the naturalist. With no direct *a priori* insight into what constitutes warranted principles of reasoning, a theory of knowledge cannot “conformably to the well-meant but impracticable precept of Descartes, set out from the supposition that nothing [has] been already ascertained” (*System*, VII: 318). Rather, it must set out to by reflection upon actual examples of successful reasoning

embedded in human behaviour. Mill's investigation of the normative therefore takes an anthropological form – an attempt to uncover normative principles by looking to the practices in which they have been made concrete. A comparison to Hegel, in this point, is telling. Both think that is not the task of the philosopher to conceive of normative structures of belief and action *ex nihilo*, but to uncover, and bring to a new level of comprehension, rational activity already in the world – to display the rational credentials of our claims to knowledge (see, *i.e.*, Hegel 1991: 11–2).

In adopting this approach, Mill is driven towards considering the *history* of knowledge acquisition. This, not only because all human practice that *can* be investigated belongs, trivially, to the past – but also because the process of acquiring knowledge of the world is one that takes place over extended periods of time, and is a social project. Mill's vision of our knowledge of the world takes as its exemplar the knowledge that we have collectively acquired *via* the sciences: “that branch of knowledge in which, by universal acknowledgment, the greatest number of truths have been ascertained, and the greatest possible degree of certainty has been arrived at” (*Herschel's Discourse*, XII: 285). Mill was not himself a historian of science, however, and for this reason, his understanding of the development of our knowledge of the world is drawn from secondary accounts. He identifies William Whewell's *History of Inductive Science* and John Herschel's *Preliminary Discourse on the Study of Natural Philosophy* as important sources in the study of the history of science he undertook in writing the *System of Logic* (*Autobiography*, I: 215–7).

The most important influence on Mill's understanding of the development of science in this regard, though, was August Comte's *Cours de Positive Philosophie*.⁸ Mill's enthusiasm for the *Cours* is clear, both from his lengthy correspondence with Comte and his 1865 essay *Auguste Comte and Positivism*.⁹ It is not difficult to see why Mill was so taken with the work. While Whewell's *History* and Herschel's *Discourse* offered invaluable data on the history of science, the underlying account of scientific methodology in each of these works retained aspects of intuitionistic appeal to the *a priori*. Not so, Comte's *Cours*, which placed empirical observation of regularities squarely at the center of its account of science. Like Mill's *System*, Comte's *Cours* also aimed to offer a unified account of our knowledge of the world in these terms, by showing that this was the basis not only for knowledge about the natural sciences, but also for knowledge of how individuals ought and act and our institutions should be arranged. In Comte, then, Mill found a historian of science with aims and outlook basically consistent with his own.

2.2 Comte's Three Stage Law

The history of science that Comte offers in the *Cours* is interwoven with discussion of the 'three stages law' – Comte's conception of how scientific investigation evolves through time.

Each of our principal conceptions, each branch of our knowledge passes successively through three different theoretical states: the theological or fictitious, the metaphysical or abstract, and the scientific or positive. [...] Hence there are three mutually exclusive kinds of philosophy, or systems of conceptions regarding the totality of

phenomena: the first is the necessary starting-point of human intelligence; the third its fixed and final state; the second is only a means of transition. (Comte 1970: 1–2; 1974: 20; 1975: 71)

The claim is one about the history of the human mind and its theoretical interaction with the world: that reason necessarily relates to the world first by means of theological thinking, then by metaphysical thinking, and only finally and through this process, by positive thinking. The transition, Comte writes, has been exemplified in the progress of the various natural sciences – in order of their complexity, they have gradually shed theological and metaphysical modes of accounting for phenomena, moving towards purely positive explanations. Mathematics first, and then astronomy, became wholly positive sciences; physics, chemistry and biology have followed more recently in turn in turn. Sociology, as the most complex science of all, Comte claims, stands on the brink of becoming positivised in the nineteenth century, and will lead to a truly scientific organization of society and its institutions.

Our earliest attempts to make sense of the world we occupy involve *theological* thinking – we understand all phenomena by explaining their behaviour as manifestations of agency. This nascent theoretical reasoning is generated in response to our speculative need to comprehend the world and our practical need to control it. Such needs are tackled, at this stage, by an attempt to understand external activity in the world by analogy to our own internal activity. In the theological phase, then, man “transfer[s] the sense of his own nature into the radical explanation of all phenomena whatever” (Comte 1975: 285). As such, we explain the world by appealing to *will* – first the will of objects themselves (*fetishism*), then the will of supernatural gods (*polytheism*) and then the will of a single God (*monotheism*). Framing natural occurrences as a manifestation of purposeful activity holds out hope of *understanding* such occurrences and achieving absolute knowledge of their essence – all the more as theological thinking moves from fetishistic to monotheistic forms. But this way of viewing the world is unstable. “It is fundamental to the nature of theological philosophy to conceive phenomena as subject to supernatural wills, and consequently as eminently variable and irregular” (Comte 1974: 96; 1975: 145). They are, therefore, supplanted by metaphysical forms of thinking.

Metaphysical thinking is, in a sense, a continuation of theological thinking – the form of reasoning practiced in this stage of human thought remains committed to understanding phenomena in terms of their essence, and achieving absolute knowledge of the world. It is, however, distinct from theological thinking because it renders essences abstract as opposed to personal: we explain events not in terms of the manifestation of will, but unseen forces inherent in nature.

The essential character of metaphysical conceptions is to attribute to properties an existence separate from the substance which manifests them. What does it matter whether we call these abstractions souls or fluids? The origin is always the same; and it is connected with that inquisition into the essence of things that always characterizes the infancy of the human mind. (Comte 1975: 149)

Ultimately, however, such postulated abstractions “*explain* nothing. For instance, the expansion of bodies by heat is not *explained* – that is, cleared up – by the notion of an imaginary fluid interposed between the molecules, which tends constantly to enlarge their intervals, for we still have to learn how this supposed fluid came by its spontaneous elasticity, which is, if anything, more unintelligible than the primitive fact” (Comte 1975: 148). Nevertheless, the process of abstraction involved in metaphysical thinking does help pave the way for a focus solely on phenomena themselves, which is characteristic of positive thinking. As metaphysical thinking goes on, irreconcilable disputes about systems of *abstracta* proliferate, and we “naturally conclude the whole science to be arbitrary, consisting more in futile discussion than in anything else” (Comte 1975: 148).

As the impotency of metaphysical conjecture about the essences *behind* phenomena becomes clear, we move towards genuinely *scientific* inquiry. In this third and final stage, we

regard all phenomena as subject to invariable natural *laws*, the discovery of which, and their reduction to the least possible number, is the aim and end of all our efforts, while causes, either first or final, are considered to be absolutely inaccessible and the search for them meaningless. [...] Everyone knows that in positive explanation, even when it is most perfect, we do not pretend to expound the generative *causes* of phenomena (Comte 1970: 8; 1974: 24; 1975: 75).

In the scientific phase of human thought, reason abandons *a priori* speculation and the quest of achieving absolute knowledge. Instead, we are guided solely by empirical observation of phenomena, and aim merely at predictive adequacy and the discovery of causal regularities. In the case, for instance, of the explanation of falling bodies, we appeal to “the Newtonian law of gravitation [...] the mutual attraction of molecules proportional to the product of their masses and inversely proportional to the square of their distances [...] As for determining what that attraction and that weight are in themselves, and what their causes, these are questions that we regard as insoluble” (Comte 1970: 8–9; 1974: 24; 1975: 75).

2.3 Reason and History

Comte’s *Cours* contains much detailed historical description of the discoveries of natural science. It is also a comprehensive account of the growth and maturation of human reason. While Comte sees the ‘three stages law’ as itself a scientific discovery – the application of the positive method to the study of human enquiry – it also has broad philosophical import. For it suggests that reason itself is historically conditioned. Comte’s claim that it is by virtue of a *law* that we reason in different ways in different periods suggests that these alternative modes of theoretical interaction are not mere *aberrations*. They are not malfunctions of human reason, but in fact human reason functioning exactly as we should expect.

Those who, in context, understand phenomena in terms of theological or metaphysical explanations are not, thereby, *irrational*. Though of course, somebody

who has been acculturated into positive thinking would be epistemically blameworthy for forming beliefs in this way, those who do so in a context lacking solidified positive norms of reason do not merit such criticism. Indeed, as Comte recognises, they are believing as they have most reason to believe – believing *rationally*. “[T]he human mind has not up to our day been in a state of insanity [...] it has constantly employed in each era the method best able to favour its progress” (Comte 1998: 48).

Without theological and metaphysical thinking, Comte holds, there could *be* no scientific thinking. This is because of the predicament in which human reason find itself in the earliest stages of our attempting to come to terms with the world. In order to construct *a theory* of the world, Comte notes, we must first arm ourselves with observations about the world. But in order to *observe* the world, we must already be equipped with a theory of the world with which to interpret and direct our observations.

Since Bacon, intelligent people are agreed that there is no real knowledge save that which rests on observed facts. As applying to the full grown state of our intelligence, this principle is evidently incontestable. But if we look at its formative stage, it is no less certain that the human mind then could not, and should not, think in this way. For if on the one hand every positive theory is necessarily based on observation, on the other it is no less certain that in order to devote itself to observation the mind needs some kind of theory. If in contemplating phenomena we had no principles to which to attach them, not only would we find it impossible to combine isolated observations, and therefore to profit from them, but we would not be able to remember them, and most of the time the facts themselves would pass unperceived before our very eyes. (Comte 1970: 4–5; 1974: 21–2; 1975: 73)

Comte’s claim is that experience is, by necessity, theory-laden. As such, the mind, in its earliest stages, “must have found itself trapped in a vicious circle”, for it could not construct a theoretical schema without experience, nor have genuine experience without a theoretical schema (Comte 1970: 1970: 5; 1974: 22; 1975: 73). The need “of some kind of a theory to link facts” could only be satisfied “by likening phenomena, as much as possible, to human acts – directly, in the first instance, by supposing all bodies have a life more or less like our own” (Comte 1975: 286–7). This is the effort undertaken in reason’s theological phase, and results in belief-worthy discoveries.

Comte’s key insight is that what we can believe and perceive, and, *ipso facto*, what inferences we ought to make, are themselves dependent on the theory in operation at any given period – and that, because such theories are themselves historical products, it follows that there is a very real sense in which *reason* can be said to be historically determined. The point is brought home in Comte’s case because the theories in question have the character of all-encompassing frameworks – theological, metaphysical or the scientific approaches to thinking about the world. It holds, though, quite generally. To the extent that *what I experience* is dependent both on

the data I receive from my senses *and* the theory which is used to interpret that data, *what I should infer* will be a function, too, of the theory I hold. And to the extent that the theory that I hold is dependent on my acculturation into a reasoning community, *what I should infer* will therefore be relative to my historical position. We shall return to this issue below.

2.4 Comte's Influence on Mill

Comte's influence on Mill was significant. Immediately after his reading the first volumes of the *Cours* in the late 1830s and early 1840s, he was prepared to describe the work as "very nearly the grandest of this age" (*Letter to Bain*, XIII: 487). His admiration for the work is clear from the opening of his lengthy correspondence with Comte, during which Mill placed himself directly under Comte's intellectual guidance.

I can say that I was already embarked in a direction rather akin to yours; but I still had to learn from you many matters of the utmost importance [...] There remain some questions of secondary rank, where my opinions do not agree with yours; one day this disagreement may well disappear. At least I believe that I do not flatter myself excessively when I say: I hold no ill-founded opinion so deeply rooted as to resist thorough discussion, such as it would encounter if you do not mind my submitting my ideas to you periodically and asking for explanations of yours. (*Letter to Comte*, XIII: 489; Haac 1995: 35)

This enthusiasm cooled over time – especially in light of Comte's unwillingness to enter into real discussion about his view about the status of women and the possibility of scientific psychology.¹⁰ Still, Mill remained convinced of Comte's importance to nineteenth century philosophy throughout his life, repeating that judgment in his revision of the *Autobiography* in the late 1860s and early 1870s, and in *Auguste Comte and Positivism* in 1865. (It is telling, and easily overlooked, that that work is longer than the essays on Bentham, Coleridge, Whewell or Tocqueville – and longer than either *On Liberty* or *Utilitarianism*.) Though Mill offered severe criticism of the authoritarian spirit and detailed ceremonialism of Comte's Religion of Humanity, he continued to believe that Comte's systematization of the philosophy of science made him "one of the principal thinkers of the age" (*Auguste Comte*, X: 291).

As was noted above, it is easy to see why Mill would have been attracted to Comte's work. Comte's ambition to ground all reasoning in the scientific age on the investigation of regularities tallied with Mill's own comprehensive inductivism. The attempt to show that all human knowledge must now have its roots in observation is perhaps less philosophically sophisticated in Comte's work than in Mill's, but it is certainly no less programmatic. He would also have been sympathetic to Comte's insistence that the study of reason can only take the form of "tracing the course actually followed by the human mind in action, through the examination of the methods really employed to obtain the exact knowledge that it has already acquired" (1970: 19–20; 1974: 32; 1975: 79–90). Further, Comte's claim that human reason's

“spontaneous” beginnings are humble, and reach scientific standards solely by means of natural self-correction, runs parallel to Mill’s own account of induction’s virtuous spiral by “ulterior revision” (*System*, VII: 319, cf. Comte 1970: 5; 1974: 22; 1975: 73).

It was, however, Comte’s conception of history, and the progress of human reason, that most impressed Mill. “We find no fundamental errors in M. Comte’s general conception of history. He is singularly exempt from most of the twists and exaggerations which we are used to find in almost all thinkers who meddle with speculations of this character” (*Auguste Comte*, X: 322). He regarded the three stage law as “the most fundamental of the doctrines which originated with M. Comte”, claiming that the historical survey of our theoretical interaction with the world in the *Cours* “is a continuous exemplification and verification of the law. How well it accords with the facts, and how vast a number of the greater historical phaenomena it explains, is known only to those who have studied its exposition” (*Auguste Comte*, X: 269).

That is not to say that Mill agreed with all of the details of Comte’s account of the mind’s passage through theological, metaphysical and positive phases. Mill argued, for instance, that the metaphysical thinking must already have started to exert an influence in order for monotheistic approaches to take hold, and that Comte’s account of the theological stage overstated the extent to which fetishistic or polytheistic understanding of phenomena could exist independently of one another (*Auguste Comte*, X: 272–9). But these are minor disagreements, framed in terms of a narrative that Mill basically accepts. Mill thought Comte’s three stage theory important for understanding the rise our way of conceptualising the world, and consistent with his own account of the rise of scientific induction.

3. Mill as a Historicist

3.1 *Historicism*

Historicism is the claim that our way of understanding the world is deeply conditioned by historical circumstance. The position was explored during the late eighteenth century in the work of Herder and Hegel, but also throughout the nineteenth century in England and France.¹¹ As we have seen, Comte holds that human beings think in fundamentally different ways about the world in various historical phases of their development – and in this sense, his position is a characteristically historicist one. The claim is descriptive: that the human beings do, in fact, reason about the world in changing ways over the course of history. It is also normative: that in an important sense, human beings are not epistemically blameworthy for doing so.

Comte is a naturalist, in the sense defined above – he holds that the world is governed by regularities amenable to scientific investigation, and that human beings are wholly part of that causal structure. But his naturalism is a distinctively *historicized* naturalism. He is aware that naturalism is a view that could only emerge historically; that it could not be known to be true *a priori*, but is itself a view that only emerged as a result of a historical process. We need not go so far as to claim that the theological or metaphysical worldviews were *true* for those operating in other periods – but to the extent that we acknowledge that such beliefs are the *right* beliefs for local agents to hold given the concepts that they possess, pressure does build on the notions of truth and falsity at stake. As noted above, the philosophical claim

driving Comte's suggestion that such beliefs are the *right* beliefs for agents to hold is his account of human observation as theory-laden. What we *observe* about the world, and how we represent it, depends on the concepts that we possess. Such concepts are themselves inherited historical products, and therefore, in an important way, our *experience* is historically conditioned.

Questions naturally arise as to whether there are *correct concepts* for us to use to enquire about the world or whether, rather, conceptual frameworks are ultimately a matter of convention, with only representations *within* such frameworks subject to genuine standards of truth and falsity. The latter view, of course, represents the direction ultimately taken by Carnap in the *Aufbau* in the twentieth century. I do not wish to pursue that connection here, but rather to ask whether Mill – given, as we have seen, that he is largely sympathetic to Comte's account of the progress of the human mind – is pushed towards this position. The issue hangs on Mill's stance on the theory-ladenness of experience. Mill holds that the naturalistic worldview is one that only emerges historically, as the result of significant process of experiencing the world. Does Mill also, like Comte, hold that how we experience the world depends on theory we possess?

3.2 Associationism and Theory Laden Observation

The answer is 'yes'. Mill's account of experience as theory-laden has received almost no attention in the secondary literature, perhaps because it is framed in terms of his associationist psychology. He is quite clear, though, during the opening of the *System*, that "we may fancy that we see or feel what we in reality infer. A truth, or supposed truth, which is really the result of a very rapid inference, may seem to be apprehended intuitively" (*System*, VII: 7). This is clarified in the chapter 'Of Observation and Description':

A great part of what seems observation is really inference [...] For in almost every act of our perceiving faculties, observation and inferences are intimately blended. What we are said to observe is usually a compound result, of which one-tenth may be observation, and the remaining nine-tenths inference. (*System*, VIII: 641–2)

Mill's associationism holds that "when two impressions have been frequently experienced (or thought of) either simultaneously or in immediate succession, then whenever one of these impressions, or the idea of it, recurs, it tends to excite the idea of the other" (*System*, VIII: 852). When the impression of fire is constantly experienced alongside the impression of heat, the idea of fire will eventually come to recall *automatically* the idea of heat – and so, more generally, when the idea of *x* is often thought of with the idea of *y*, the idea of *x* will come to recall *automatically* the idea of *y*. Such is the basic claim of claim of associationism: that the repeated proximity of two ideas or impressions – whether as a result of observation, inference, chance, or socialization – come to recall one another. But Mill also holds that associations can, under frequent repetition, become so bound up with one another, as to become *inseparably combined*.

[T]he laws of the phenomena of mind are sometimes analogous to mechanical, but sometimes also to chemical laws. When many impressions or ideas are operating in the mind together, there sometimes takes place a process of a similar kind to chemical combination. When impressions have been so often experienced in conjunction that each of them calls up readily and instantaneously the ideas of the whole group, those ideas sometimes melt and coalesce into one another, and appear not several ideas, but one. (*System*, VIII: 853).

When the idea of x is often thought of with idea of y , the idea of x can come to ‘mechanically’ trigger the separate idea of y – but under some patterns of repetition, the ideas of x and y can become ‘chemically’ fused, ceasing to be separate ideas at all. If the language of mechanical and chemical combination is dated, the thought is nevertheless clear enough. Ideas do not subsist as unchanging atoms, to be combined with others but retaining their own form and identity. Under constant patterns of repetition, the idea of food does not merely *recall* the idea of nourishment – rather, the idea of nourishment comes to form part of our idea of food. The point is not one about definitions of words, but rather that we can come to see objects in the world as intimately coloured by ideas that were originally quite separate.¹² Under constant repetition, that is to say, we can come to see objects *as*.

Two basic accounts can be offered of the act of observation involved in *seeing my brother*. We can hold that experience in *unladen*: that we are presented in observation merely with a given field, and that on each and every occasion, as a separate act of mind, we *infer* that this coloured surface is my brother. Or we can hold that experience can be *laden*: that we are presented *in observation* with a field already packaged with conceptual content. Under this latter view, we might experience the coloured surface *as* my brother. Mill’s associationism provides a picture of how what *starts* as unladen observation can, by processes of association, *become* laden incidents of ‘seeing as’. To offer a familiar example: where once it was necessary to repeatedly infer from my visual field that *this object is a face*, by gradual processes of association, over time, the two act becomes “intimately blended”, and I come to see the object *as a face* (*System*, VIII: 641–2).

Interpretations of the manifest image can become associationistically internalised over time to the extent that they enter into our idea of *what we observe*.¹³ Mill distinguishes what “would pass, in common language, for a direct perception” from the sensations which are at the basis of those perceptions (*System*, VIII: 642). It is doubtful, though, that Mill holds that even the “original data” of consciousness consists in entirely unladen content. Certainly, this is not the content he thinks that ordinary reasoning begins from. His examples of such primitive acts of perception – “I know directly, and of my own knowledge, that I was vexed yesterday, or that I am hungry to-day”, that we see “a variously coloured surface” (*System*, VII: 7) – are themselves rich in conceptual content. And, indeed, Mill gives little reason to believe that we can access the manifest image unlayered with conceptual content. The associative process that moulds what we take ourselves to experience may go so deep as to render unconceptualised data inaccessible. Close and attentive analysis of what

we take our observations to be *may* uncover an unconceptualised field as given content – but that field may simply be irretrievably lost in the process of associative combination and interpretation. Looking upon the data provided by the senses unencumbered by interpretation may involve an alienation of our acquired intellectual faculties that simply proves impossible. Once we have developed a “second nature”, as Mill puts it in another context, it may prove “stronger than the first” (*Nature*, X: 396; cf. McDowell 1996: 84ff.)

Inferences about how phenomena should be interpreted can enter into acts of observation themselves, by processes of association. How we observe the world, then, will be determined in part by the theory of the world that we possess. We are educated into theories, and this process results in theories becoming impressed into observations – such observations as then inform and clarify the theories we possess. Socialisation involves changes in how we see the world and, by iterative reinforcement, the process becomes stronger and more deeply entrenched. The theories into which I am raised – and their standing, as revealed by their place in the process of acculturation – is itself a reflection of the history of my community. In this sense, our experience is saturated not just with a theory of the world, but with our community’s history of attempting to make sense of the world.¹⁴

3.3 *Naturalism and Relativism*

Much of this remains under the surface in Mill’s work, but we should not be surprised by its presence. If, as Mill holds, the human mind is thrown into the world unequipped with *intuitive* means of understanding, it is quite natural to hold that individuals must start their attempts at comprehension by utilising those ways of understanding which are already in play at the time – it would be implausible to claim that each person manufactures methods of engaging with the world afresh. Given this, it is not surprising that these ways of thinking about the world become entrenched *via* the processes of association.

Of course, naturalism is itself a theory of the world – an all-encompassing account of how the world is. Such theories of the world are comprehensive enough to inform how we see the world and therefore the content of our observations. Our basic view on the world, that is to say, is a theory that is both responsible for, and measured by, our observations of the world. Our confidence in the claim that the world is naturalistic is partly grounded in the way that we have come to see the world as naturalistic interpreters. Our naturalistic theory of the world and the presence of observations based on that theory grow in tandem, with feedback between theory and observation gradually entrenching the view. Mill is a naturalist, to be sure – but, when pressed, his naturalism can only be a theory of how *we* must view the world, given our inherited modes of observing and interpreting the world. It must, that is to say, be a historicized naturalism.

That is, in one sense, merely to add the claim that theories can, over time, become embedded in our observations to something already commonly known: that Mill holds that our justification for believing in naturalism is not that it conforms to anything *external* to our observations of the world, but only that it functions as a consistent “interpretation of consciousness” (*Examination*, IX: 125). The question, of course, is whether there might be, in other circumstances, *other* coherent modes

of interpreting consciousness. Are *other* coherent ways of apprehending the world possible? Certainly, some other ways have been attempted, and have proven insufficient – theological and metaphysical modes of understanding proving unstable. This does not, and cannot, rule out the possibility of other consistent non-naturalistic ways of looking at the world, however: this possibility must remain very much open.

Of course, where others might infer that naturalism is a uniquely adequate theoretical approach to the world on the basis of its apparent simplicity and our inability to conceive possible alternatives, Mill must resist this move. Mill, as was noted above, debars any appeal to the method of hypothesis, as an autonomous principle of reason. Given that we cannot vindicate the claim to naturalism's uniqueness as a theoretical approach to the world on the basis of an enumerative induction, we have no reason to believe that there could be no non-naturalistic modes of understanding the world, possible and appropriate for those operating with conceptual resources quite different from our own.

Does this amount to the claim that Mill is a relativist? If that seems to be a troublesome conclusion, we would do well to remember that Mill certainly *is* a relativist in one sense. Mill is unequivocal in his commitment to the "Relativity of Human Knowledge": that because our perception of the world is always conditioned by our sense faculties, our representations of the world are always representations of what the world is like for beings such as ourselves (*Examination*, IX: 4ff.).¹⁵

Taking the same view with Kant of the unknowableness of Things in themselves, and also agreeing with him that we mentally invest the objects of our perceptions with attributes which do not all point, like whiteness and sweetness, to specific sensations, but are in some cases constructed by the mind's own laws; this philosophy, however, does not think it necessary to ascribe to the mind certain innate forms, in which the objects are (as it were) moulded into these appearances, but holds that Place, Extension, Substance, Cause and the rest, are conceptions put together out of ideas of sensation by the known laws of association. [...] It is obvious that what has been said respecting the unknowableness of Thing "in themselves," forms no obstacle to our ascribing attributes or properties to them, provided these are always conceived as relative to us. (*Examination*, IX: 9–10)¹⁶

Mill is a relativist in at least *this* sense – he holds that our theoretical interaction with the world is conditioned by, and therefore our knowledge and beliefs are relative to, the basic mental apparatus we possess. He calls the insight "one of great weight and significance, which impresses a character on the whole mode of philosophical thinking of whoever receives it" and acknowledges that "[i]t would, no doubt, be absurd to assume that our words exhaust the possibilities of Being" (*Examination*, IX: 11).

The question must, then, be whether that basic apparatus changes throughout history. Of course, physiologically, it does not change much. But we have seen that Mill holds that processes of association go deep: what is delivered by observation varies according to acculturation into different theories. And in this sense, our basic

apparatus *does* change – our modes of cognition undergo genuine transformation. What we should believe about the world is determined by our observations, which are themselves determined in part by our cognitive makeup. This is, in a sense, a relativist position – one which claims that there are correct beliefs to hold for beings such as ourselves, but acknowledges the contingency of our *being* such beings, and its openness to change.

3.4 *Realism and the World in Itself*

As we have seen, Mill is pushed towards a distinctively *historicized* version of naturalism. We are warranted in holding naturalism to be true – but that warrant is a local one, and comes with the acknowledgment that, had our history been different, we may, justifiably, see the world differently. The underlying humility of Mill’s theoretical philosophy can easily be overlooked because so much of that work takes the form of a polemical engagement with intuitionism; but it is, in fact, a natural result of the commitments he holds. If Mill does not always acknowledge the historicist aspects of his own work, there is nevertheless good reason to think that they are there.

Such views are, of course, in keeping with the context in which Mill was writing. The nineteenth century was, as Mill acknowledges, a period of renewed historical consciousness – and one alive to historical malleability of human nature. Looking at different periods of history, Mill notes, one sees that human nature exhibits “astonishing pliability” (*Civilization*, XVIII: 145). “[I]f there are some tendencies of human nature [...] which are the same in all ages and countries, these never form the whole of the tendencies” (*Spirit of the Age*, XXII: 256–7). Such changes are revealed in our shifting institutions, goals, and ideals. But they go deeper – also influencing the way in which we think about and relate to the world.

There is, nevertheless, a strand of realism which runs throughout Mill’s philosophy. His claim that we are capable of dividing the world into natural kinds is one well known instance. “In so far as a natural classification is grounded on real Kinds, its groups are certainly not conventional; it is perfectly true that they do not depend upon an arbitrary choice” (*System*, VII: 720). His vision of science more broadly sometimes betrays the same position:

A conception implies, and corresponds to, something conceived: and though the conception itself is not in the facts, but in our mind, yet if it is to convey any knowledge relating to them, it must be a conception *of* something which really is in the facts, some property which they actually possess, and which they would manifest to our senses, if our senses were able to take cognizance of it. (*System*, VII: 295)

This realist impulse might seem to sit uneasily with a commitment to historicism, as described in this chapter. Indeed, in one sense, it clear *does* sit uneasily. In another sense, however, it is exactly what one should expect from the historicist. Those who believe in the conditioned nature of thought may seem pressured to abandon the goal of discovering how the world *really is* – retreating to the safer terrain of

discussing *the world as it is for beings such as ourselves*. But one holding on to this position might equally claim that they *are* discussing the world itself and the structure it genuinely possesses – while interpreting these words in their own idiom, and refusing to admit that meaning can be assigned to any alternative.

If this seems like an equivocation, we should remember that if the conditioned nature of thought is taken seriously, the notion of the world as it really *is* becomes curiously difficult to get purchase on, as anything separate from the world as it is for beings such as ourselves (Putnam 1981: 1–21). The only sense of the world we can have is the sense of the world from within our own conceptual scheme, which does not present itself as mere convention. The distinctions of modern science are genuine distinctions in the world for beings such as us – they do not represent arbitrary choices. As such, for one committed to a genuinely historicist stance, that position itself fades quickly from view.

Mill raises the thought that “the names we possess [...] all stand for known modes of Being”, but he does not press it (*Examination*, IX: 11). He did not think through the point with sufficient clarity to see all that it entails. As such, the tensions between realism and antirealism in Mill’s philosophy go largely unresolved in his work – but they were closer to his grasp than is generally appreciated.

Notes

¹ A word is perhaps necessary about terminology. I have chosen to present both Mill and Comte as representatives of the *naturalistic* tradition, rather than either *empiricists* or *positivists*. These terms would, on other occasions be appropriate – as would debates as to their fittingness for each philosopher. For the purpose of this paper, however, I wish to treat Mill and Comte in relation to their views on the *the world and human beings as governed by causal regularities* and *our mechanisms of knowing the world*. The label ‘naturalism’ seems to capture this combination better than any other.

² Mill’s own attitude towards Hume is complex and often ambivalent; Hume’s philosophy was perhaps less directly influential on Mill than we might expect, given his centrality to the empiricist tradition as now conceived. While Mill clearly takes Hume to have been a figure of significance in the associationist school, his view of Hume’s contribution is significantly coloured by Mill’s view of him as a primarily “negative thinker”, representing a destructive moment within philosophy which needed to be supplemented by something positive (*Bentham*, X: 80; see also *Coleridge*, X: 131–2). All references to Mill’s works are to Mill (1963–91), and are given by (*short title*, volume: page).

³ These have come to be referred to as ‘Mill’s Methods’. See Godden (2017: 240–1) for a useful summary.

⁴ The best source on Mill’s views on logic, mathematics and geometry remains Skorupski 1989: 126–166. See also Kitcher (1998) for useful discussion of Mill’s philosophy of mathematics.

⁵ See Wilson (1990) for the most thorough account of Mill’s associationist psychology.

⁶ See Macleod (2013) for discussion of Mill’s account of ‘art’ and ‘science’ which marks the distinction between the normative and the factual in his work.

⁷ Most, of course, would now accept that inference by enumerative induction must be subject to similar underdetermination worries – that for any given inductive inference, there will always be an alternative inductive inference, equally supported by the evidence. Such is the New Riddle of Induction. Mill’s rejection of hypothesis may have deeper roots, however, being reflective of a belief that we adopt a fundamentally *receptive* stance to the world in our acts of induction, which we do not when *actively* hypothesising. See, for instance, Mill’s claims that “Kepler did not *put* what he had conceived into the facts, but *saw* it in them” (*System*, VII: 295). Such a position can avoid problems of underdetermination – though whether it is compatible with Mill’s views on the ultimate contents of perception, and whether that view of induction is itself plausible, of course, are further questions. See Macleod (2016) for a suggestion of a quite different reason why Mill may have been reluctant to admit inference to the best explanation as an irreducible norm of belief – that he wishes to rule out the structural possibility of a clash between conflicting fundamental norms.

⁸ *Course of Positive Philosophy*. In what follows, I draw on translations offered in Comte (1970, 1974, 1975 and 1998), and offer references to the translated passage in each version, where available. Pickering (1993–2009) is an invaluable source of information on Comte. See, particularly, volume 1, on the *Cours* and Comte’s relationship with Mill.

⁹ See Haac (1995) for the complete correspondence between Mill and Comte.

¹⁰ See Guillin (2009) for a comprehensive treatment of Mill and Comte’s disagreement on the status of women, which centres around the question of whether we can know that there exist *natural* differences of ability between men and women on the basis that they exhibit differences in the context of nineteenth century England and France. See Scharff (1996: 19–44) for useful material on their disagreement about the possibility of scientific psychology. Scharff argues that the traditional interpretation of this dispute – that Mill maintains that empirical observation of internal states of mind is possible, whereas Comte denies it – is mistaken. He maintains that Comte merely means to deny the possibility of *rational* psychology in the tradition of Descartes and Cousin, and does not even attend to the possibility of *empirical* psychology. This seems plausible, and Scharff is right to point out that this traditional interpretation originates in Mill’s own account of the dispute. But Scharff’s claim that Mill and Comte’s dispute was thereby *deeper* than they realised does not seem to me to follow. Indeed, his anti *a priori*ism and commitment to the relativity of knowledge seem to commit Mill, too, to a rejection of the possibility of rational psychology. If that is so, he and Comte at this agreed on more than they realised.

¹¹ Mandelbaum (1971) remains a useful account of historicism, and includes treatment of Mill and Comte. Beiser (2015) is a detailed study of the emergence of historicism in the eighteenth century Germany.

¹² One instructive example is the change that occurs in our idea of virtue. “There was no original desire of it, or motive to it, save its conduciveness to pleasure, and especially to protection from pain. But through the association thus formed, it may be felt a good in itself, and desired as such with as great intensity as any other good” (*Utilitarianism*, X: 236). Our ideas of virtue and happiness become intimately linked – the ideas themselves change as a result of that process of association.

¹³ Mill offers the example of the seeing a sunset. Under repetition, the inference that the sun is in motion and that the earth is at rest can enter *into* our observations, and we see the

sun *as moving*. Indeed, such instances of seeing *as* can be hard to overcome, even where we know they are misleading: some people “cannot by any effort make themselves *see* sunset any otherwise than as the sinking of the sun below the earth”. It is only in the presence of the repeated “counter-association” provided by a more sophisticated theory of astronomy that such seeing *as* is subject to change: only then can I, “according to the manner in which I direct my thoughts, see sunset either as the earth tilting above the sun, or as the sun dipping below the earth” (*Notes on the Analysis*, XXIII: 165–6).

¹⁴ Mill’s account of observation is thus similar to the pragmatists: see, for instance, James (1907: 165–194).

¹⁵ See Scarre (1989: 154ff.) for extended discussion of Mill’s doctrine of the relativity of knowledge.

¹⁶ Tellingly, we should note, Mill notes that this view also represents “the doctrine of Auguste Comte” (*Examination*, IX: 10).

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