Practical Unintelligence and the Vices

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At the southwest entrance to the campus of Wichita State University is the *Wichita Arch*, a sculpture by Andrew Goldsworthy. The arch is an impressive 14 feet high and 22 feet wide, and is made of 74,000 pounds of Flint Hills limestone. The arch's most curious feature, though, is an Australian elm tree that Goldsworthy chose to plant directly beneath the arch, where it will grow and eventually interact with the arch above in ways that will become clear only with time. Someday the sculpture may be a jumble of limestone blocks scattered around a fine and undaunted elm; anyway, someday we'll know. For me, the arch is a microcosm, a metaphor for a world of interactions so complex and developments so unforeseeable that the differences our choices make will become clear only with time. Ignorance, uncertainty, risk: that is our situation, and virtue in action is for making the best of it.

But *how* do virtuous people make the best of it, in such a non-ideal world as ours? The stock reply is, "By aspiring to the ideal of virtue as far as they can." But then the question is, "can" at what cost? Ideal virtuous persons will always know more than any real virtuous persons, but sometimes the cost for real persons of eliminating their ignorance is greater than the value of the knowledge that would replace it. In other words, sometimes it is rational to remain ignorant, and ideally, one would not aspire to the ideal.[1] So, how does virtue make the best of *that*?

This chapter is about what virtue looks like when ignorance is rational—or more accurately, it is about a species of vice that is the failure to deliberate wisely in light of the fact that one is acting in ignorance, even when that ignorance is rational. In trying to understand what that vice is, I start from a view of wise deliberation we find in Aristotle's *Nicomachean Ethics*.

It might not seem obvious either that there are vices of deliberation or that Aristotle would have much light to shed on them. When we think about good and bad character, especially from Aristotle's point of view, we usually think of good and bad *intent*, where virtue is a matter of choosing good goals for their own sake (*Nicomachean Ethics* [*NE*] II.4, 1105a26-33). That is not incorrect, but it is only half the story. As Aristotle observes, it is because of virtue that one has the right goal, but it is because of practical intelligence or wisdom—what Aristotle calls phronesis—that one gets things right in what leads to that goal (VI.12, 1144a7-9). There are therefore two broad ways of acting viciously. One is the familiar failing of acting for the wrong goal, that is, with bad intent; but the other is a failure to deliberate well about realizing one's goal, even when that goal is right and the intent is good.

The species of vice I have in mind belongs to this second genus of vice, an often overlooked family of vices that I shall call collectively, for lack of a better label, *vices of practical unintelligence*. In the first half of this chapter I say more precisely what sort of failing the vices of practical unintelligence are, and why they really are vices. Then in the second half I look at a pair of real-life cases in which ignorance is rational, in order to illustrate some general habits of thought for deliberating better in cases like these. These habits of thought are not for *correcting* ignorance, though—ex hypothesi, that wouldn't be rational. Instead, these habits *correct for* ignorance, making one more responsible in managing ignorance when it is more prudent to accept it serenely than to eliminate it heroically.

Part 1. Virtue, Vice, and Practical Unintelligence

1.1. Virtue, vice, and other states of character

As I understand it, a virtue of character, like courage or generosity, is a long-lasting personal attribute that is acquired through practice and experience, by which we humans, being

capable of choosing how we will live our lives, manage to live our lives well, in both our actions and our emotional reactions.[2] And just which attributes are virtues of character depends on what attributes creatures of our kind need in order to do well at living complete, fulfilled lives of a characteristically human sort. Courage is a virtue, because a good human life involves having goals and values that are worth standing for despite adversity; a good human life is situated among others for whom we have genuine concern, so generosity is a virtue; and so on.[3] Of course, it is beyond my scope to defend this view of virtue here, which I also take to be Aristotle's view in broad outline; but it is at least reasonably clear what the view is. Predictably, scholars disagree about how exactly to understand Aristotle's view of virtue in the subtler details. What's more alarming, though, is that when it comes to vice, the disagreements are over whether Aristotle even has a single view of it in the first place, and Aristotle's struggles here are indicative of just some of the many ways that vice remains difficult to understand.

One fundamental question concerns just what sort of attribute a vice is in the first place. In one place (*NE* VII.8) Aristotle says that a person with a vice chooses what he chooses for the sake of physical pleasure, and chooses it thinking it is a good thing for him to choose. In that case, vice is a counterpart to virtue: virtuous persons and vicious persons alike try to choose what is good, but the vicious are mistaken about what that is. In another place, though (IX.4), Aristotle says that vicious persons are torn between their desires for what they think is good, on the one hand, and their desires for pleasure, on the other; in that case, vice is instead like weakness of will. And so one of the main controversies surrounding Aristotle's view of vice is whether and, if so, how these two thoughts about vice are meant to go together.[4] The answer isn't clear on a scholarly level, and it isn't clear on a philosophical level either.

There are other questions too. Aristotle distinguishes vice from various pathological conditions he labels "brutishness";[5] but what exactly are these pathologies, and in any case where is the boundary between pathology and vice? Is vice compatible with other states of character, such as weakness of will or even virtue, as Aristotle arguably suggests?[6] Is vice something incorrigible, as he also seems to suggest at times, and if so, why?[7] And how does a person become vicious in the first place? Aristotle thinks virtues develop like skills; is that how vices develop too?[8] Aristotle says that children often start life with admirable natural tendencies, but which go wrong if they don't also become practically intelligent as they mature; is that where vices come from generally?[9]

But surely, the reader will suppose, we must know at least this much about Aristotle on vice: vicious actions all fall into pairs, one that is "too much" and one that is "not enough," since virtuous action is a "mean" between them that is neither excessive nor deficient but "just right" (*NE* VI.6). However, it is not clear that we do know even this much. This is, after all, a very odd thing to say about vice: who would ever expect that the failings to which humans were generally prone in a given area of life turned out to be, in every case, *exactly two*? And that those two vices were not just opposites but *contraries*? And not just any contraries, but the specific contraries of *excess and deficiency*? Such a tidy rubric could occur to one only in the abstract, never from close reflection on how humans actually fail.[10]

Now, in a better moment Aristotle compares vicious actions to shooting wide of a target that virtuous action manages to hit: "that's why the one is easy and the other is hard—it is easy to miss the target, but hitting it is hard."[11] Brief though it is, this is a far more plausible insight, as it emphasizes that there are any number of ways in which humans might fail in a given sphere of action, and also that there are any number of ways that those failings may be related to each

other, not just as contraries.[12] But for exactly that reason, it is far from clear how these two ways of thinking about vice, juxtaposed in the very same passage, are meant to go together.[13]

So in the end it is surprisingly hard to say just what Aristotle thinks a vice is—and more than that, surprisingly hard to say what a vice is, full stop.

1.2. The structure of virtue and the nature of vice

A clearer picture emerges if, instead of trying to relate vices to other states, we start from the idea that vices are what the virtues serve to correct.[14] This too is suggested by the target metaphor, since becoming a skillful archer is a matter of developing good habits and practices in place of the manifold failings that keep people from reliably hitting targets. And this is a plausible place to start: after all, for most of us, most of the time, we fail when we do not because we don't have the goal of doing what is fair or being a good friend, but because we struggle in all sorts of ways to do these things well. It is because virtue serves to correct so many different failings that Aristotle focuses on virtue as a matter of acting and experiencing emotion at the right time, in relation to the right things, for the sake of the right things, and in the right manner (1106b21-3), as practical intelligence determines these things (1107a1-2). Virtue serves to correct all sorts of failings, chiefly because of that part of virtue that is intelligence in practical reasoning, not so much about whether to do good things but about how to do them well.

Virtue must therefore have a twofold structure, both the right goal and right reasoning about the goal (*NE* VI.1), just as Aristotle says: "virtue makes the goal right"—or more literally, virtue "makes the target (*ton skopon*) right"—"and practical intelligence makes things right towards the goal" (VI.12, 1144a7-9). The first part of this statement is a truism: generosity, say, makes the goal right in the sense that generosity is defined by its standing goal of acting generously. I don't mean the oddly self-conscious goal of doing "the generous thing." Generous

people have the goal of helping others with their resources; friendly people take notice of outsiders and welcome them in; kind people are comforting, encouraging, and accepting of others, especially those who are exposed and vulnerable.[15] But now it becomes clear why Aristotle makes the addition of practical intelligence, because even for someone with the good goal of helping a friend or comforting an outsider, the question remains how to realize that goal.

Now, obviously, realizing a goal takes instrumental reasoning, savvy about ways and means for executing a plan (*NE* VI.12, 1144a23-6). But of course, a plan cannot be executed until it has first been *formulated*, and the crucial thing to notice about a goal like "helping a friend" is that it is *indeterminate*: it takes deliberation to specify just what would *count* as helping a friend, here and now (cp. III.3, 1112b11-12, 33-4). And that is what practical intelligence is for: it makes the right choices for the sake of a good goal (1144a7-9) by specifying what achieving that goal would have to look like, in light of what really does benefit human beings (VI.5, 1140a24-31). Practical intelligence is the capacity for making determinate what genuinely realizing one's goal *amounts to*, a middle step between having a goal and identifying the means (VI.12, 1144a7-9). That is why Aristotle says that to hit the target is to act with "right reason" (*orthos logos*, II.6), which is the same thing as practical intelligence (VI.1).[16]

So it takes two things to have a virtue: the right standing goal, and the right practical reasoning to turn that good but indeterminate goal into a determinate goal that is still good. But in that case, there are two broad ways of having a vice: one, by having the wrong goal, and two, by getting things wrong towards the goal, even if it is the right goal. Virtue has a twofold structure, and so vice has a twofold nature. The first sort of vice is what we might call a failure of good will, and when we think of vice, in Aristotle or otherwise, this is the sort of vice we usually have in mind. This is the sort of vice we associate with "bad people," but also, more subtly, with

people whose otherwise reasonable goals, such as running a successful business, become corrupted along the way, as when one determines to see one's business succeed at any cost, say.[17] I won't say more about this sort of vice here, because what interests me at present is the second sort of vice, which has received so much less attention: vices of getting things wrong towards the goal. Now, one way of getting things wrong towards the goal is to fail in instrumental reasoning, and I think such failings can also be vices; but I shall leave these vices aside too. The vices I want to examine instead are failings not necessarily of either savvy or good will, but of practical reasoning about what good will must amount to in here-and-now circumstances. Vices of this sort turn a goal that is good but indeterminate into a determinate goal that is no longer good. These are the vices I call, generically, *practical unintelligence*.

We can identify some species of this generic vice, because there are more than one failing that must be corrected in order to make a good goal determinate. A virtue in the strict sense is an *excellence* of human action, emotion, and choice, as opposed to mere proneness to certain stereotypical behaviors, say. Every virtue therefore requires practical intelligence (*NE* VI.13, 1144b14-17, 20-8, 30-2), and requires it in two roles. The first role is clear already, namely to specify what would count as realizing a virtuous goal, taking that goal just on its own: the goal of generosity is helping, but my willingness to help isn't the virtue of generosity unless I grasp what counts as helping. But, second, my willingness to help also doesn't count as generosity if my open-handedness is also unjust, say, again because the virtue of generosity is an excellence. In order for practical intelligence to make one's goals determinate *in a way that is fully excellent,* it must specify those goals not merely one at a time but in concert with the various goals and constraints of the other virtues too (*NE* VI.12, 1144a29-b1).[18] We have, then, two species of

practical unintelligence: specifying a goal in a counter-productive way in its own right, and specifying a goal in a way that involves doing other sorts of wrong along the way.

1.3. Practical unintelligence, correcting ignorance, and correcting for ignorance

As with all vices, things done in practical unintelligence are not just shortcomings but *failings*, because a person is blameworthy on account of them. One is therefore responsible for doing those things, or as Aristotle put it, they are "up to us" and "voluntary," and as such their origin is "internal" to us (*NE* III.1). More precisely, we might say that their origin is internal not just to the agent but to his or her *agency*: the contrast to voluntary actions is not only forced actions—like being literally carried away—but also actions that are caused by ignorance.[19] If I cut in line ahead of someone else because I don't see what's wrong with putting myself first, then my cutting in line is voluntary, and vicious. But if I cut in line because I don't realize that that is what I am doing—perhaps I just don't see the other person—then my cutting in line is, in that sense, involuntary. Of course, it also matters *why* I am ignorant; I am still guilty of cutting in line if the reason I don't see the other person is that I can't be bothered to look. In other words, it is possible for ignorance itself to be voluntary, and blameworthy (III.5).

Aristotle's focus on ignorance is especially relevant to the vices of practical unintelligence, which concern not the goal itself but ignorance about what would count as realizing that goal. The most obvious way to be practically unintelligent is to specify a goal badly *when one really should have known better*. It is a generous goal to throw a fun party for one's sixteen-year-old child; but it is practical unintelligence, not generosity, to fuel that party with booze because sixteen-year-olds think booze-fueled parties are fun. This is to specify the goal badly in its own right; the action isn't generous because it is stupid, whereas generosity is an excellence. It is also possible to specify a goal in a way that isn't fully excellent, when one

should have known better. Generosity with someone else's money is no excellence, because it is unjust to that someone else; generosity that is not just lavish but wasteful is no excellence, because valuable resources are worth preserving; generosity that makes one a doormat for other people is also no excellence, because it is unjust to oneself.[20] As Aristotle understands blameworthiness, these actions are blameworthy when one is blameworthy for not knowing better—better, that is, than to specify one's goal in these ways.

But Aristotle's account cannot be the whole story. Even someone who bears no responsibility for the ignorance in which he acts, must still take responsibility *for the very fact that he is acting in ignorance*. It is 1977 and you are a US Congressperson on a committee tasked with drafting an amendment to the Clean Air Act for reducing sulfur oxide emissions from coal-fired power plants, and you are considering a proposal brought forward by your staffers to require all new power plants to install flue-gas desulfurization chambers—or "scrubbers"—as the approved technology for reducing emissions. Question: among the feasible amendments your committee might draft, is this proposed amendment the optimal one for reducing sulfur oxide emissions, given both the value of cleaner air and the costs of this way of cleaning it? In all likelihood, you don't know. Even if the answer were knowable, given enough research, you are probably in no position to do that research.[21] Really, though, the answer is not knowable—not now anyway, in advance of any experimental process for discovering which technologies, processes, and methods achieve optimal results in different applications. Clearly, you are not responsible and not blameworthy for your ignorance about the merits of this proposal. But you are responsible for what you do next, given that you will do it in ignorance. Even when one is blameless for not *correcting* one's ignorance, one can still be blameworthy for not *correcting for* one's ignorance.

By "correcting for" ignorance, I mean taking responsibility at the second level for managing ignorance at the first level. And this is something we do all the time in our daily lives. We correct for our ignorance about a decision by not deciding until we have to, or in some cases by not deciding at all.[22] Not deciding is not always an option, though, and in any case, not deciding can have consequences about which one might also be ignorant.[23] When we do have to decide in ignorance, we try to reduce the bad potential effects of our decision should the decision should turn out to be wrong;[24] we might defer to experts;[25] we might consult the "wisdom of the crowd";[26] and so on. Or consider how we raise our children, since we always raise our children in ignorance; if we knew in advance what knowledge and capabilities our children would most come to need in their future lives, we would raise them very differently than we do. Instead, we try to prepare them as best we can for any number of possible futures. Even when we are not responsible for our ignorance, we can still be responsible and blameworthy for what we do in ignorance, when we fail to do what we might have done to correct for it.

It is that failing—that species of the genus of vices of practical unintelligence—that I want to focus on in the rest of this essay. The vices of practical intelligence are an under-explored genus of vices, and the vices of failing to correct for unavoidable ignorance are perhaps its most under-explored species. It is not just that they have been explored so little, but that they have been explored so little for the importance they actually have in our world. Ours is a world for which the *Wichita Arch* is an apt metaphor, a world of such complexity that it will become clear only later just what we have actually been doing. In a world like that, good character includes taking responsibility for managing ignorance for which no one can be responsible.

In the second half of this chapter I look first, in fact, at the drafting of the 1977 amendments to the Clean Air Act in greater detail, in order to illustrate a failure to manage

ignorance that led to a poor specification of a good goal, just considered in its own right. Then, lastly, I look at the 1962 amendment to the US Food, Drug, and Cosmetic Act, in which a failure to manage ignorance led to a specification of a good goal that realized that goal on its own terms, but which failed nonetheless with respect to other goals along the way. These cases from the world of public policy have the advantage, for one thing, of being real-life cases, not cases cooked up in a philosopher's laboratory, and they illustrate real pitfalls that plague not just legislators' decisions but everyday decisions generally. For another, these cases have the great advantage of hindsight, as it is now apparent just where they went wrong and what would have been better—and therefore, crucially, what general habits of deliberation would have made for better management of unavoidable ignorance.

Part 2. Well-meaning vice and correcting for rational ignorance

One way to summarize the first half of this chapter is that practical intelligence includes certain second-order skills for dealing with first-order ignorance. It is surprising that Aristotle considers only responsibility for first-order ignorance, and not responsibility for second-order management of it, in his discussion of ignorance and responsibility. Aristotle was aware of second-order management of first-order shortfalls, after all: abstaining from simple pleasures is not a "mean" with respect to them, he observes, but it can be a second-order mean in correcting for a first-order weakness that it is too dangerous to try to correct (see *NE* II.9). What is more, practical intelligence for Aristotle actually encompasses a suite of virtues of deliberation, and two of these are especially relevant for managing first-order ignorance insofar as they concern the evaluation of one's information and situation at the "front end" of deliberation. Each will become relevant in turn as we move through the two cases of policy failure.

2.1. Getting the goal wrong: clean coal, dirty air

One capacity within practical intelligence is what Aristotle calls "comprehension," or "judgment in order to discriminate about the things intelligence deals with, when someone else is speaking" (see *NE* VI.10, 1143a11-16).[27] This isn't terribly clear, but his point seems to be that part of deliberating well about a problem is being critical about how that problem is being framed and presented, and about what information one is being given about it.[28] It is this virtue of practical intellect in particular that would have helped greatly in the drafting of the 1977 amendments to the Clean Air Act, as well as in the choice on the part of numerous well-meaning stakeholders to throw their support behind those amendments.

In response to a growing environmental movement, US Senator Edmund Muskie drafted a Clean Air Act that became law in 1970, and which required (among other things) the Environmental Protection Agency to identify goals for reducing sulfur oxide emissions from coal-fired power plants by 1977. The resulting Clean Air Act Amendments of 1977 established a two-part regulation: a limit on sulfur oxide levels, and the mandatory use of scrubbers on all new plants to comply with that limit.[29] The scrubber mandate was hailed both as an environmental victory, in mandating the latest pollution treatment technology, and also as a symbolic victory, affixing the enormous scrubbers to the very plants that generate the smoke.[30] What's more, the mandate even found support among large swathes of the coal industry itself. The Amendments did not prevail without a fight, though, as the scrubber mandate was opposed even by Muskie himself, as well as Senator Pete Domenici and a handful of other Congressmen.[31] But despite this opposition, in the end Representative Paul Rogers and Senator Howard Metzenbaum persuaded Congress to join forces with groups like the National Clean Air Coalition and the United Mine Workers to require scrubbers for all new power plants constructed in the US.

Unfortunately, the victory for the scrubber mandate of the 1977 Amendments was not a victory for cleaner air, for the simple reason that not all coal is created equal.[32] One variety of coal, found mainly in western states, has lower sulfur content but is more expensive to mine, whereas "dirty coal" in eastern states is cheaper to mine but contains more sulfur. By requiring power plants to install scrubbers regardless of what variety of coal they burn—in fact, switching fuel sources was explicitly ruled out as an alternative to scrubbing[33]—the Amendments gave plants an incentive to use cheaper "dirty coal." The scrubber mandate was therefore an extremely costly way of meeting an emissions reduction goal that could have been met or even exceeded simply by forcing plants to discover their own ways of reducing emissions, such as fuel-switching. The 1977 Amendments therefore did less to clean the air than to create a subsidy for the eastern mining industry,[34] which unlike the western industry was well organized and well connected to key politicians like Rogers and Metzenbaum, who argued openly in committee hearings for the rents the scrubber mandate would create for their constituencies.[35]

The scrubber mandate of the 1977 Clean Air Act Amendments represented a failure to have good goals on the part of vested interests and their representatives in Congress. But the mandate also represented a failure of practical intelligence on the part of the well-meaning supporters of the Amendments, within Congress and without, because that mandate was a poor specification of the good but indeterminate goal of improving air quality. From the outset, the Congressional staffers working on the Amendments simply equated scrubbers with cleaner air. But this assumption did not just fail to grasp the basic environmental implications of a scrubber mandate. It also failed to grasp the political implications of giving regulators the enormous discretionary power of specifying precisely what technology plants must adopt, a power of enormous monetary value for any well organized, well informed, and politically powerful

interest group that could manage to capture it.[36] In short, well-meaning supporters of the 1977 Amendments threw their support behind detailed means to a goal that had not been intelligently specified even on its own terms.[37]

For most members of Congress, not to mention average citizens, reducing sulfur oxide emissions from coal-fired power plants is a most unfamiliar problem, for which they have very little information and no prior experience or feedback. In other words, it is precisely the sort of problem in which the gap is widest between aiming at a goal that is good but indeterminate and specifying a determinate goal that is still good. So how should well-meaning citizens decide where to throw their support on an issue like this? For most people, it is simply not feasible to invest the time, energy, and attention it would require to correct their ignorance about such specialized and complex subjects, and the decision to remain ignorant will usually be a rational one. A better strategy is instead to *correct for* one's rational ignorance, and we can understand that strategy here in finer detail as one of developing three habits of critical thinking: the habit of asking "Compared with what?," of asking "At what cost?," and of asking "Then what happens?"

Asking "Compared with what?" reminds us not to compare the real world with an ideal world, but instead to prioritize between the feasible alternatives within the real world. An ideal world in which plants keep burning clean coal even after building an extremely expensive scrubber will always be better than one in which they switch to dirty coal. But in a world where fuel choices are driven by costs, the real question is how best to harness that cost-cutting drive so that it will also yield the best environmental results. And "Compared with what?" has an answer in this case: when a cost-effective means of complying with a performance standard becomes available, firms will adopt it even without a technology standard. We have proof of this principle if we need it. For one thing, it so happens that the cost of "clean coal" fell in the 1980s and 90s,

and many plants then switched to clean coal anyway, all on their own.[38] For another, plants worked to develop new technologies to comply with performance standards once non-compliance cost them something. The 1990 Clean Air Act Amendments eliminated the scrubber requirement and instead issued plants tradeable licenses to emit within a total emissions limit. Emitting sulfur therefore cost the opportunity of selling a license instead, and the result was a flurry of entrepreneurial activity in sulfur reduction, as evidenced by a boom in US patents.[39]

Proponents of clean air, within Congress and without, from the beginning asked about scrubbers, compared with what other technology they might mandate. An important critical question to learn to ask, though, is why Congress would mandate any *technology* in the first place, instead of mandating performance and placing the burden of discovering how best to comply on power plants, which not only ought to bear that burden but also have the most to gain from finding the best technology and the most to lose from overlooking it.[40] More generally, the 1990 amendment shows that when you can't know enough in advance, it's a good idea to try to unleash a discovery process.

Second, asking "Then what happens?" reminds us that intentions are not results. Results matter; if my good intention of cleaning the air is more important than the actual result of cleaner air, then my intention isn't good after all.[41] Supporters of the 1977 Amendments intended to make the air cleaner, but what actually happened was that in some cases the air became even dirtier, and in any case not as clean as it might have been with lower-cost alternatives that were forgone in favor of scrubbers.[42] What actually happened was that there was less environmental innovation than there might have been, as the subsequent 1990 Amendments made clear. What actually happened was that older power plants remained in use longer because of the expense of installing scrubbers on new plants.[43] What actually happened was that existing power providers

enjoyed a market advantage over new power providers, as the cost of scrubbers was a barrier to entering that market.[44] And what also happened was that the dirty-coal industry continued to enjoy an implicit subsidy because the extra sulfur oxide emissions remained costless for power plants and their customers. Asking "Then what happens?" directs thinking to who might be likely to benefit, and thus who has a crucial incentive not to be rationally ignorant about the likely outcomes.

And third, asking "At what cost?" reminds us that choices have opportunity costs, that is, that no good thing can be had without also forgoing some other good thing. To be sure, the 1977 Amendments did create some improvements in sulfur oxide levels, but at what cost? One cost we have already seen is the forgone opportunity for even greater improvements. But even such improvements as the Amendments created still came at much greater expense than was necessary.[45] For instance, scrubbers are inconsistent in their performance, so the cost of monitoring their compliance is very high.[46] The 1977 Amendments also required scrubbers to be in use at all times, forcing power plants to install back-up scrubbers for down-times; by contrast, the 1990 Amendments allowed firms to bank licenses for down-times.[47]

Of course, asking these three questions about a proposed policy does not correct one's ignorance about that policy. But then, it's not supposed to. These questions are general: if I don't know much about sulfur oxides, asking these questions isn't going to fix that; but at least I can learn how to ask the right questions about things I don't know much about. And that I think is what "comprehension" is for. Comprehension is about not being a cheerleader. It is about being a skeptic, in the Greek sense of that term, as someone who knows there is always more investigating to be done. Of course, it can't be paralysis either. But our would be a world of far

less practical unintelligence if there were more people generally willing to go slower in leaping from intentions to an expectation of results.

2.2. Failing others along the way: ineffective drugs

A second discriminative capacity of practical intellect is what Aristotle calls "sense" (*gnōmē*, *NE* VI.11), and it is particularly relevant to specifying a goal in a way that does not fail others along the way, as "sense" is a capacity for being sensitive, or sympathetic, in considering choices from many points of view.[48] And it was "sense," I think, that was particularly needed in deliberation about the 1962 amendments to the Food, Drug, and Cosmetic Act, since that deliberation focused on minimizing one problem for one set of patients, with no consideration for the new problems to be created for other patients.

In 1906 the US government passed the Food and Drug Act, which required drug labeling, and in 1938 the Food, Drug, and Cosmetic Act which regulated drug safety. Then in 1962 the Food, Drug, and Cosmetic Act was amended to require FDA approval of the efficacy of new drugs, in addition to approval of safety.[49] The goal of the 1962 amendments was clear: to reduce if not eliminate waste arising from needless innovation in the pharmaceutical industry. This was a good goal, because ineffective drugs are harmful drugs, wasting both money and precious time that could have been spent on some more effective treatment. And the new regulation was indeed effective in eliminating waste. Writing a decade later, economist Sam Peltzman argued that drug innovation had slowed by about 60% compared with the pre-1962 trend,[50] and that the 1962 Amendments had eliminated about $100 million annually (in nominal dollars) in what would have otherwise been wasted spending on ineffective drugs;[51] the American Medical Association estimated the eliminated waste at about $150 million.[52] And of course, these savings in consumer surplus pale in comparison with the improvements in quality and duration of life for patients who

aren't wasting precious time on ineffective drugs.[53] Even better, all this elimination of waste happened without any significant rise in the prices of new drugs.[54] The goal of the 1962 Amendments was therefore a good goal, and the determinate course action specified in the Amendments was effective in realizing that goal, considered on its own.

The problem, though, is that while the 1962 efficacy requirements saved many patients from ineffective drugs, they also increased drug ineffectiveness for *other* patients, and to an even greater extent. The most ineffective drug of all is the drug you can't obtain, and by lengthening the process of developing new drugs, the effectiveness requirements made otherwise effective drugs unavailable for an extra 2 years.[55] Although the most generous estimate of reduced waste after 1962 was about $150 million annually, Peltzman estimated that the annual cost of eliminating that waste was about $400-$550 million in lost consumer surplus due to delay, on a conservative estimate,[56] or about 5%-10% of this multi-billion dollar market.[57] And of course, far more important are the losses of life and activity resulting from the additional delay of new drugs being brought to market, which Peltzman estimated to be in the billions of dollars.[58]

The increased efficacy requirements of the 1962 Amendments represented a failure of practical intelligence, not because they failed to specify their primary goal of reducing waste from ineffective drugs, but because they specified that goal in a way that also failed others whose access to effective drugs was thereby delayed. The problem is not merely that the increased requirements created losers, but that it created losers who lost more than the winners won. As David Schmidtz puts the point, showing that winners win more than losers lose doesn't necessarily justify a policy, but the fact that losers lose more than winners win really should put an end to it.[59]

The chief reason for this failure was the failure to ask, "At what cost?" For instance, in response to Peltzman's report the FDA restated the benefits created by increased effectiveness, and pointed out that however high the costs might be, they knew of no less costly way of creating safe, effective drugs. That reply is telling, because it makes exactly the same mistake that spawned the Amendments in the first place: it frames the problem as one of maximization when in fact it is a problem of optimization.[60] The choice is not between effective drugs or not, but of an appropriate level of effectiveness relative to its costs in forgone availability. And we know for certain that the 1962 Amendments did not achieve that level. For one thing, subsequent legislation was required to reduce the delay of drugs effective for small numbers of patients—so-called "orphan drugs"—to make development costs recoverable.[61] For another thing, even today physicians continue to prescribe drugs that have been approved as effective in one use to treat patients in some different use for which the drug hasn't been approved. The demand for proven effectiveness is therefore lower among those physicians and their patients than the 1962 Amendments allow.

Framing the problem as one of optimization also points up the importance of asking, "Compared with what?"[62] Unlike the FDA, pharmaceutical firms have not just an incentive to demonstrate a drug's efficacy but a further incentive not to spend more on demonstrating efficacy than it is worth to physicians and patients. When the FDA approves a drug that turns out to fail patients, that failure is seen; what is unseen, of course, is the harm to patients who forgo the benefits of drugs that aren't approved. The FDA therefore has more to lose from what it approves than from what it doesn't approve,[63] and so its incentives are always in the direction of extra caution, whether this is more caution than it is worth to patients or not. Pharmaceutical firms also have an incentive to be cautious, because less effective drugs have a shorter revenue

stream and also damage a firm's reputation. (That is why the post-1962 reduction in waste, as Peltzman found, was relatively modest.) But pharmaceutical firms also have a crucial incentive not to be over-cautious, because extra caution delays revenue. The interplay of these twin incentives constantly pushes pharmaceutical firms into closer alignment with the demands of physicians and patients, who are interested in both the effectiveness and the availability of new drugs. The comparative question, then, is what sorts of controls improve that alignment. For example, tort laws permitting suits to be brought against firms for selling ineffective drugs would increase a firm's incentive to test for efficacy, if only to be able to demonstrate in a future courtroom that their research efforts had been reasonable.[64] Likewise, firms have an incentive to increase physicians' confidence in their drugs, by (for instance) cooperating with independent agencies that certify drug effectiveness,[65] perhaps to different degrees for different potential uses, leaving it to physicians and patients to decide how much demonstrated effectiveness in a given use is enough. The FDA could require such private certification, and could even formalize and standardize different categories of effectiveness across the industry, without having to provide certification itself or even determine what the standards of certification should be. The point is that asking "Compared with what?" reminds us to look for alternatives—perhaps alternatives to regulation, or perhaps alternative forms of regulation. What matters is the emergence of drug standards at an equilibrium of the availability of new drugs and the effectiveness of the drugs that are available, given the tradeoffs demanded by patients and physicians, rather than what is desired either by the manufacturers of those drugs or by a central agency that regulates them.

Lastly, asking "Then what happens?" directs our thought to what consequences such a policy might actually have despite what its supporters might happen to intend. Proponents of the 1962 Amendments championed them both as improving the health outcomes of patients who are

prescribed drugs and as removing distortions in the drug market by reining in the profits of pharmaceutical firms. What actually happened was that there was less competition and greater market share[66] for larger pharmaceutical firms, which can better absorb the costs of increased regulatory compliance than smaller firms can.[67] The Amendments therefore distorted prices in ways that continue to harm those who are poorly organized for political action—patients—while benefiting pharmaceutical firms, which are extremely well organized.[68]

Asking "At what cost?" would remind us to consider the implications of the regulation not just for winners but also for losers. Asking "Compared with what?" would remind us to consider how different incentives lead different groups to formulate the problem very differently, as one of maximization versus one of optimization. And asking "Then what happens?" would remind us that the political process treats groups very differently, by directing benefits chiefly on the criterion of which groups are politically organized.

Conclusion

A year later, Senator Pete Domenici reflected on the "bloody-two year brawl"[69] that resulted in the 1977 Clean Air Act Amendments:

> There is no single individual with a pen called Mr. Congress who actually writes the law. The final law represents a compromise between the House and Senate. Each body is represented in turn by a dozen or so individuals. Often the compromises that are reached resemble what happens when one shuffles two incomplete decks of cards together and then tries to play bridge.[70]

Even this senator who hailed the 1977 Amendments as an astounding achievement couldn't help but add that "several of these compromises were hammered out at three o'clock in the morning and both sides were so weary from screaming at each other that they would have

agreed to almost anything."[71] As Ackerman and Hassler put it, "Rather than define goals with care and articulate cost-effective policies to implement them, the conference committee made its final decision amid a crush of last-minute compromises on issues that seemed even more important."[72] Any voices of dissent within the committee were then effectively buried almost 500 pages into the committee's massive final report.[73]

That is the process by which policies are publicly made. But even for those of us who are mere spectators of such processes, there are still important decisions to be made about those processes: decisions not only about what to believe but, more practically, about what to believe *in*, and to what to give our support as citizens. Unfortunately, these decisions are extremely difficult and costly to make well, because the world of public policy is a "perfect storm" for unavoidable ignorance. The goals involved—like reducing sulfur oxides—are remote from our everyday lives, so that we have had no practice at specifying those goals well. Feedback on such decisions tends to be extremely unclear and comes very slowly if at all. We usually have little to gain or lose individually from any given decision, but we always bear great individual costs in trying to make our opinion, and perhaps our vote, significantly better informed.[74] Only for some—and these very well organized politically—will it be rational to correct any ignorance on their part about the substance of choices to be publicly made.[75] The processes by which such decisions are made are, for most people, hopelessly opaque;[76] even unwitting coalitions arise between the well-meaning "Baptists," so to speak, who piously ban Sunday liquor sales, and the self-interested "bootleggers" who obtain a Sunday monopoly without having to lift a finger.[77] And no politician would dare be so pedantic as to try to correct ignorance on the part of the general public, so that public discourse serves rather to reinforce that ignorance,[78] and thus to converge on policies at the intersection of what special interests want and the general public will

allow.[79] The result is that even in a democracy choices made publicly often work, paradoxically, to serve the interests of the few at the expense of the many.[80] No individual citizen can change that process and few can understand it, but every citizen bears responsibility for managing his or her own behavior in relation to that process that he or she can't change or understand. To be sure, when correcting one's ignorance is not rational, failing to correct it is no vice. But I have argued that even when ignorance is rational, there is a serious vice of practical intellect in failing to correct for that ignorance.

Aristotle observed that virtue of character makes one's goal right, and practical intelligence gets things right towards that goal, by understanding what realizing that goal would look like, here and now, in the world as we find it. And so it is a genuine virtue of practical intelligence to develop an array of general critical skills—which I have sketched as a handful of questions one can learn to ask automatically—that are acquired, like other skills and virtues, through focused effort, and that make one more responsible in the management of rational ignorance about precisely what it takes to realize good goals.

But while these skills are general, they are not formal. In the contexts we have considered in this chapter, these skills require learning rather a lot about the process of choosing publicly, and enough familiarity with basic philosophical, political, and economic principles to think about those choices in terms of comparisons between feasible alternatives, in terms of likely outcomes for different groups, and in terms of what good thing, as always, must be given up in order to secure any other good thing. It follows that we all have much to learn, and always will. In a world like ours, a world of elms on collision-course with arches, that is what it is like to get better and to do better.

Works cited

Notes

[1] The seminal discussion of "rational ignorance" is Downs 1957.

[2] See Aristotle, *NE* II and Russell 2014a.

[3] See Aristotle, *NE* III-V and Russell 2012, chaps. 2-3.

[4] See Annas 1977, 553-4; Bostock 2000, 173; Irwin 2001; Brickhouse 2003; Thorp 2003; Roochnik 2007; Kontos 2009; Curzer 2012, 372; Muller 2015.

[5] *NE* VII.1, 5-6. See Thorp 2003; Curzer 2012, 382-6.

[6] Curzer 2005; 2012, 384-6.

[7] See Curzer 2012, 367-72.

[8] Annas, unpublished.

[9] *NE* I.13; see Russell 2009, 20 n. 37 and references.

[10] Hursthouse 1980. See Curzer 1996 for a more sympathetic treatment of this rubric.

[11] *NE* II.6, 1106b32-3, my translation. Nonetheless, he doesn't seem to have abandoned the tidy rubric, since in II.7-8 he proceeds to squeeze the various virtues and their associated vices into it.

[12] Note too that this metaphor favors the characterization of vice as a counterpart to virtue rather than to weakness of will.

[13] See Hursthouse 2006.

[14] Foot, Hursthouse

[15] On the nature of the reasons for which virtuous persons act, see esp. Williams 1995 and Hursthouse 1995.

[16] For discussion see Russell 2009, chap. 1.

[17] See Munger and Russell, forthcoming; Annas, unpublished.

[18] See Russell 2014b for discussion.

[19] Of course, voluntary actions are a vague class, as Aristotle realizes; it can be difficult to say whether and when sacrificial actions, actions done under duress, etc. are voluntary or involuntary (III.1).

[20] See Russell and LeBar, forthcoming.

[21] Aristotle observes (III.5) that we hold people responsible for not knowing things it would have been easy for them to know. The other side of the coin, of course, is that someone isn't responsible for not knowing something it would have been too hard for him or her to know.

[22] Mark LeBar

[23] Brian Kogelmann

[24] Danny Shahar; maximin in TJ

[25] Steve Wall

[26] See Aristotle, Politics III.11.

[27] Trans. Broadie and Rowe.

[28] See Hursthouse 2006*a*, 291-8.

[29] Scrubbers are large reaction chambers, about 70 feet long, attached to smoke stacks, in which sulfur binds with lime to be extruded as solid waste.

[30] Ackerman and Hassler 23-4, 27-9, 44-6; Smith and Yandle loc. 1386.

[31] Ackerman and Hassler, 38-9, 45-53.

[32] Ackerman and Hassler 17.

[33] Ackerman and Hassler 30

[34] President's Report

[35] Ackerman and Hassler 30-1; Smith and Yandle loc. 884, 926. Classic case of B&B

[36] Ackerman and Hassler 1981, 17-21.

[37] See Ackerman and Hassler 1981, 56.

[38] Carlson et al. As Ackerman and Hassler (1981, 80) ask, if a given technology really is the most efficient way of meeting an environmental requirement, why would it be necessary to require firms to adopt it?

[39] B&S

[40] Ackerman and Hassler 1981, 69.

[41] On the importance of consequences in virtuous action and deliberation, see Russell 2014.

[42] Ackerman and Hassler 1981, 2.

[43] Ackerman and Hassler 1981, 68.

[44] Smith and Yandle loc. 1386.

[45] Ackerman and Hassler 1981, 2; see also Carlson, Smith and Yandle loc. 884.

[46] Ackerman and Hassler 1981, 70-2.

[47] Burtraw and Szambelan

[48] External evidence for this understanding of "sense" is the oath taken by Athenian jurors to use "their most equitable sense." See Louden 1997, 114-15.

[49] For discussion, see Peltzman 1974, 6-8; Peltzman 2006, 23:48 – 42:17.

[50] Peltzman 1974, chap. 2.

[51] Peltzman 1974, 37-46. Peltzman hypothesized that an ineffective drug would have only a few good years before doctors, hospitals, and other experts caught on, and on that basis was able to estimate the ineffectiveness of new drugs introduced before 1962 by measuring their eventual decline in price and market share.

[52] Peltzman 1974, 48-9.

[53] REF?

[54] Peltzman 1974, 34-5.

[55] Peltzman 1974, 17-18. By the 1980s this had become about 3 years; see Malani and Philipson 2012, 115-16.

[56] Peltzman 1974, 48-9.

[57] Peltzman 1974, 38, 81.

[58] Peltzman estimated these losses as forgone future income based on expected productivity, even while recognizing how inadequate any such estimate could ever be. But what makes that estimate inadequate is that it *understates* the value of life and activity, so such an estimate is still useful as a crude indication of what losses of life and activity amount to *at the very least*.

[59] Schmidtz 2001, 153.

[60] Peltzman 1974, 88-9.

[61] These are the Orphan Drug Act of 1983, and the Prescription Drug User Fee Act (PDUFA) of 1992. Even by the 1970s Peltzman (1974, 17) had already observed a trend towards concentrating drug innovation on larger submarkets. See also Malani and Philipson 2012, 104.

[62] Peltzman 2006, 38:52 – 42:17.

[63] Peltzman 1974, 83.

[64] Malani and Philipson 2012, 130-9.

[65] Malani and Philipson 2012, 107.

[66] Peltzman 1974, chap. 6. Thomas 1990 argues that this shift explains how research and development expenditures rose after 1962 even though innovation declined, since that decline came from the exit of smaller firms.

[67] Peltzman 2006, 37:10 – 38:47.

[68] See Peltzman 1974, 82-3.

[69] Domenici 1978, 478.

[7070] Ibid. 479.

[71] Ibid. 480.

[72] Ackerman and Hassler 1981, 56.

[73] Ibid. 38-9.

[74] Downs.

[75] Downs.

[76] Yandle.

[77] Yandle and Smith

[78] Pincione and Teson

[79] Caplan.

[80] See Buchanan 2003.