

The Reach of Ignorance

WHAT IGNORANCE IS ALL ABOUT

Cognitive ignorance is the lack of knowledge of fact. Error is a matter of commission. With error we have the facts wrong. Ignorance, by contrast, is a matter of omission: with ignorance we do not have the facts, period. By and large, error is thus worse than ignorance. As Thomas Jefferson wrote: “Ignorance is preferable to error; and he is less removed from the truth who believes nothing, than he who believes what is wrong.”¹ In a way this is true enough. Ignorance leaves us without guidance, error sends us off in the wrong direction. And frequently we are better off staying put.

However, the reality of it is that ignorance (“error of omission”) often leads to outright error (“errors of commission”). Of course, ignorance is not an all-or-nothing matter; it is only too often a thing of aspects and facets. “Given me a five-letter word for *visitor* beginning with G,” asks the crossword-puzzle solver. Granted, he does not know the word. But he has narrowed things down quite a bit.

The clearest index of ignorance is the inability to answer meaningful questions in a way that manages to convince people—ourselves included. For if a question is indeed authentically meaningful, then it will have an answer, and if we are unable to resolve that question then we are through this very fact ignorant of what the answer is. The inability to identify the answer convincingly is the clearest possible indication that we do not know it.

Often we do not simply respond to ignorance by leaving a mere blank. We have a natural and perfectly reasonable inclination to fill in those gaps in the easiest, most natural, and sometimes even most attractive way. Who has not overtaken some stranger on the road and been disappointed by the visage on which Reality decided? Who has not been startled by the actual deeds that filled the gap left open by a political candidate's vacuous campaign? Jumping to conclusions over a chasm of ignorance is a natural human tendency from which few of us are exempt.

There are as many sorts of ignorance as there are sorts of things to be ignorant about. And so even as knowledge knows no bounds, so does ignorance. The price of ignorance in general is incapacity. The person who does not know where to find food cannot eat. The person who does not know the combination cannot open the lock. The person who does not know how to start the engine cannot drive the car. Even as knowledge is power, so ignorance is impotence. This is a key motivator for hoarding information and keeping secrets.

It is even difficult to obtain a taxonomy of ignorance. For the realm of ignorance is every bit as vast, complex, and many faceted as that of knowledge itself. Whatever someone can know, they can also be ignorant about—arguably exempting a handful of Cartesian exceptions, such as the fact that knowers are pretty much bound *ex officio* to realize that they themselves exist and can think.

Ignorance encompasses a vast and varied terrain. All sorts of infor-

mation is simply not available. Many aspects of reality vanish without a trace—the array of yesterday’s clouds, for example. And much about the thought life of others is inscrutable to us, unless they tell us—and do so honestly. (What was on Napoleon’s mind on the long journey to St. Helena?) But while such things are difficult—perhaps even impossible—to find out about them is not in principle unknowable. (We could have photographed yesterday’s clouds—though we didn’t. Napoleon could have pounded out his mind into a journal—though he didn’t.) Nobody knows the day on which the last of the Neanderthals died or what Caesar had for breakfast on that fateful Ides of March. But it is in theory possible that the requisite information should come to light—there is nothing inherently unattainable about it. The issue of contingent ignorance—of what people are too lazy or too incompetent to find out about—does not hold much interest for cognitive theory. What matters from the theoretical point of view are those aspects of ignorance that betoken inherent limits to human knowledge.

The ignorance of people can only be compared in this, that, or the other respect. To amalgamate ignorance overall would involve comparing apples and oranges. There is no way to measure ignorance. Perhaps information can be measured textually by comparing the space that needs to be dedicated to its storage—the size of library holdings or the computer bits involved. But ignorance is immeasurable: we cannot know the lineaments of the unknown.

If we adopt the distinction between *substantive* knowledge about the factual matters of some domain and *metaknowledge* about our knowledge itself, then it is going to transpire that even in domains where (as per the sceptic’s contention) substantive knowledge is not to be had. Nevertheless, the prospect of metaknowledge remains open and indeed is bound to be nonempty in view of what is, by hypothesis, the fact of our knowing substantive knowledge to be

unavailable. And so, to acknowledge pervasive ignorance is not to endorse scepticism. After all, to claim to know that there is nothing that one knows is a paradox. On the other hand, the claim that there are some things that we do not know affords us as secure a piece of knowledge as there is.

It is important to heed the distinction between facts that nobody *does actually* know and facts that nobody *can possibly* know—between merely unknown facts and inherently unknowable ones.² Of some things we are (and must remain) ignorant because of the world's contingent arrangements. Of others our ignorance lies in conceptual structure of the situation with regard to the item at issue. The really interesting issue, accordingly, relates not to that which *is not* known to some or even to all of us. The examples one can offer of the former are too many, and of the latter too few. Instead, the really interesting question relates to that which cannot be known at all. From the theoretical point of view, this represents the most interesting form of ignorance.

One of the most obvious sources of ignorance is the sheer volume of available factual information. There is so much out there to be known that any given individual cannot ever begin to make more than an insignificant fraction of it. The vastness of any given person's ignorance is unfathomable. Isaac Newton wrote of himself as “a boy standing on the seashore . . . whilst the great ocean of truth lay all underscored before me.” This holds in spades for the rest of us. And, ironically, the more one learns, the more vast one's scope of ignorance is destined to become.

But are there actually any unknowable truths—cases in which there indeed are actual facts of the matter of such a sort that no one can possibly get to know them?

IGNORANCE ABOUT OUR OWN IGNORANCE IS FUNDAMENTAL

The very idea of cognitive limits has a paradoxical air. It suggests that we claim knowledge about something outside knowledge. But (to hark back to Hegel), with respect to the realm of knowledge, we are not in a position to draw a line between what lies inside and what lies outside—seeing that, *ex hypothesi*, we have no cognitive access to the latter. One cannot contemplate the relative extent of knowledge or ignorance about reality except by basing it on some picture of reality that is already in hand—that is, unless one is prepared to take at face value the deliverances of existing knowledge.

Now one key consideration here is that while one can know indefinitely *that* one is ignorant of something—that there are facts one does not know—one cannot know specifically *what* it is that one is ignorant of—that is, what the facts at issue are. One of the most critical yet problematic areas of inquiry relates to knowledge regarding our own cognitive shortcomings. It is next to impossible to get a clear fix on our own ignorance, because in order to know that there is a certain fact that we do not know, we would have to know the item at issue to be a fact, and just this is, by hypothesis, something we do not know. “Being a fact I do not know” is a noninstantiable predicate as far as I am concerned. (You, of course, could proceed to instantiate it.) But “being a fact that *nobody* knows is flat out noninstantiable—so that we here have a typical vagrant predicate.

Actually, if there is always a fact which a given individual does not know then there will be a fact that nobody knows. For if F_1 is a fact that X_1 does not know, and F_2 is a fact that X_2 does not know, then there will be a fact, namely F_1 -and- F_2 , which neither X_1 nor X_2 manages to know. And this cognitive route to unknown facts will extend across the entire landscape of existing individuals. There will, accordingly, have to be unknowns—facts that are not known to any one at all.

To be sure, all we claim to know is *that* there are such facts. But *what* they are is itself one of those matters of unknowability. Obviously we cannot give an illustrative example of an unknown fact, seeing that this requires knowing the item to be a fact, contrary to hypothesis.³ One can, in principle, illustrate ignorance by adding questions no one can answer, but indicating the detail of facts that nobody knows is totally impracticable for us.

The actual situation is not that of a crossword puzzle—or of geographic exploration—where the size of the terra incognita can be somehow measured in advance of securing the details that are going to be filled in. We can form no sensible estimate of the imponderable domain of what can be known but is not. To be sure, we can manage to compare what one person or group knows with what some other person or group knows. But mapping the realm of what is knowable as such is something that inevitably reaches beyond our powers. And for this reason any questions about the cognitive completeness of our present knowledge are and will remain inexorably unresolvable.

That our knowledge is sufficient for our immediate purposes—specifically by enabling us to answer the questions we then and there have before us—is something that is in principle readily determinable. But that it is *theoretically* adequate to answer not just our present questions but those that will grow out of them in the future is something we can never manage to establish. For it is clear that the sensible management of ignorance is something that requires us to operate in the realm of practical considerations exactly because the knowledge required for theoretical adequacy on this subject is—by hypothesis—not at our disposal. We have no cogently rational alternative to proceed, here as elsewhere, subject to the basic pragmatic principle of having to accept the best that we can do as good enough.

It is accordingly needful to distinguish between contingent and necessary ignorance. The former is the result of the way in which things work in the world—time covers its tracks, the future does not

foreshadow its doings, chaos precludes prediction, that sort of thing. By contrast, necessary ignorance relates to situations where claiming knowledge leads to self-introduction. “I know that I am ignorant to the fact that” or “ f is a fact I will never come to realize” would be paradigm illustrations, there being truths of this format I cannot possibly come to realize.

SPECIFIC VERSUS INDEFINITE KNOWLEDGE AND IGNORANCE

In this connection it is instructive to note some relatively simple but nevertheless far-reaching considerations regarding the project of rational inquiry and the limits of knowledge. Let Kxp as usual abbreviate “ x knows that p .” And now note the contrast between the contentions:

“ x knows that something has the property F ”: $Kx(\exists u)Fu$

and

“ x knows of something that *it* has the property F ”: $(\exists y)KxFy$

The variant placement of the quantifier means that there is a crucial difference here, since in the second case, unlike the first, the knower in question is in a position specifically to identify the item at issue. Here in this second case our knower not merely knows generally and indefinitely that *something* has F , but knows concretely and specifically *what it is* that has F . The two cognitive situations are clearly very different. To know that someone is currently in the Library of Congress is one thing, and to know who is there is quite another.

And this has wider ramifications. For the reality of it is that there is a world of difference between saying, “I don’t know whether p is a fact” and saying “ p is a fact that I don’t know.” The former is unproblematic, but the latter just doesn’t make sense.⁴

Correspondingly, we must recognize that there is a crucial difference between the indefinite “I know that there is some fact that I do

not know” and the specific “Such and such is a fact of which I know that I do not know it.” The first is unproblematic but the second not, seeing that to know of something that it is a fact I must know it as such so that what is at issue is effectively a contradiction in terms. I can know about my ignorance only vaguely and generally (*sub ratione generalitatis*) at the level of indefiniteness, but I cannot know it in concrete detail. I can meaningfully hold that two and two’s being four is a *claim* (or a *purported* fact) that I do not know to be the case, but cannot meaningfully maintain that two and two’s being four is an *actual* fact that I do not know to be the case. To maintain a fact as fact is to assert knowledge of it: in maintaining *p* as a fact one claims to know that *p*.

And this has wider ramifications. For the reality of it is that there is a world of difference between saying “I don’t know whether *p* is a fact” and saying “*p* is a fact that I don’t know.” The former comes down to maintaining that I neither know that *p* nor that not-*p*. No problem there. However, the second statement, to the effect that *p* is a fact that one doesn’t know to be so, comes down to maintaining both that *p* is true and that I do not know this. Such a claim is clearly self-contradictory.⁵

SOME PRIME SOURCES OF IGNORANCE

THE UNAVAILABLE FUTURE

Perhaps the clearest and most decisive impediment to knowledge are our *conceptual* limitations. It was not for lack of intelligence of brain power that Caesar could not have known that his sword contained tungsten, but the very idea was not as yet available, that tungsten just did not figure on the conceptual agenda of the time. We cannot gain cognitive access to a fact whose conceptualization outruns available resources. It is not that the facts at issue are unknowable as

such; their cognitive inaccessibility is to those to whom the requisite conceptual mechanism are unavailable. Those facts whose conceptualization awaits the innovations of an as-yet unrealized fabric are inevitably unknowable by the individuals of the present.

THE STATISTICAL FOG

Consider the inauguration of public safety measures. A speed limit is set, a traffic light installed, an inoculation campaign developed. There is no question that many lives are saved. But whose? Many among us would not be here if these steps had not been taken. Yet who are they? We know there are some who were saved by the measure but there is no way of telling who they are: this is something that nobody knows or indeed can know.⁶ There are bound to be individuals of whom it is true that their life was so saved, and consequently there is a fact of the matter here: “X’s life was saved” will—and will have to be—true for certain values of X, for certain individuals. But there is no possible way for us ever to identify such an individual. The fact at issue is an inherently unknowable fact. It is hidden away undetectably in a statistical fog. We know some of the generalities of the matter, but cannot possibly come to grips with the specifics.

The circumstance reflects the crucial difference between the cognitively infinite $K(\exists x)Sx$ and the cognitively specific $(\exists x)KSx$. We know that many lives have been saved by certain preventive measures. But there is no one we know whose life was saved by these measures. The issue of what specific lives were saved represents a paradigmatic instance of an unknowable fact. It is something whose identity is hidden out of our cognitive sight in the statistical fog induced by the chaotic character of nature causality.

THE STOCHASTIC UNIVERSE OF CHANCE

A coin is to be tossed. We know full well that it will come up heads or tails. But we do—and can—have no idea as to which it will be. This

too is a salient substance of inevitable ignorance. Here we deal with items that are hidden out of our sight by the stochastic character of natural causality. Thus given an atom of a heavy and unstable transuranic element we can predict *that* it will decay but not when. How long it will last is a matter of inevitable ignorance.

THE RAVAGES OF TIME

The world's causal processes so unfold as to erase all traces of various realities that have been. The sand dunes of the past leave no detectable traces in the desert of the present. The writing on the page is lost irretrievably when the paper is burned and its ashes scattered. The swans of yesteryear are undetectable in the waters of the present. And so even as much of the future is as-yet invisible, so much of the past has become as-of-now unvisited.

THE WAYS OF THE WORLD

The examples of unknowability that we have been considering—those rooted in undetectability, unpredictability, and irrecoverability—are all in their way inevitable given the nomic structure of natural process. Each of them hinges on how things work in the world. They are necessary but *physically* necessary. In this regard, they stand in contrast with our ignorance regarding matters that we could readily find out about.

CULPABLE AND VINCIBLE IGNORANCE

Does ignorance have an ethical or moral dimension? Is it something blameworthy, or are the ignorant more to be practical than censured? It all depends. For there is culpable ignorance and excusable ignorance. Excusable ignorance prevails in circumstances where there is a plausible excuse of the individual's being ignorant—an excuse that renders it “only natural” that someone might be ignorant in

the circumstances. Culpable ignorance, by contrast, is inexcusable—ignorance where we have every right and reason to expect that there should not be any. But ignorance about the extent of our own ignorance is for the most part excusable on grounds of inevitability. One surely cannot be blamed for a failure to know things that someone had not the opportunity to learn. (It would be absurd to reproach the travel agent of having booked passengers on the Titanic.) On the contrary!

Is ignorance as such a sin? Yes and no. Sometimes, to be sure, breaches of ignorance are problematic. There are, after all, things one ought not to know—other people’s personal secrets, for example. Certain kinds of confidential or proprietary information belong to others. Lifting the veil of ignorance from information that, properly speaking, should be concealed can be inappropriate. There are certainly no general obligations to accumulate information at large and unrestrictedly. On the other hand, there is a body of information—generally characterized as “common sense”—which everyone is expected to know (for example, that long-term immersion in water causes people to drown). Additionally, there are categories of information that people are expected to know *ex officio* in virtue of their role or status as parents, as physicians, as algebra teachers, or whatever.

Culpable ignorance obtains when the requisite information is available, but insufficient, incompetent, or inadequate efforts are made to obtain it. While this sort of thing is perhaps the most frequent and widespread sort of ignorance, it is nevertheless of less theoretical interest than its contrary—venial or excusable ignorance. For the latter obtains in all of those situations where ignorance is inevitable because the requisite information regarding the fact is unavailable thanks to the general principles of the situation. It is this business of in-principle unattainable information that is at center stage throughout this volume.

Ignorance deserves censure only when it is culpably willful. Venial ignorance is in general remediable by adequate effort. Then, as the saying has it, “You can fix ignorance” (though it shrewdly goes on to say, “but you can’t fix stupidity”). But often as not, ignorance is a perfectly appropriate defense against reproach: he simply had no way of knowing. Clearly, it would only be those cases in which culpable ignorance leads to untoward consequences where moral reproach would be in order.

One of the great defects of cognitive scepticism is that it annihilates the very idea of culpable ignorance. For if (per impossible) the sceptic were right and we could know nothing whatsoever, then of course ignorance of any and all sorts would be at once eventualities. Where no one can know anything, no one is open to reproach for a lack of knowledge.

That certain sorts of knowledge can be expected of, and must be at least provisionally attributed to, variously situated people is simply a matter of social common sense.

To be sure, besides informative ignorance there is also practical or performative ignorance: lack of know-how rather than lack of know-what. Even the best informed among us may well not know how to steer a supertanker or how to shear a sheep. And those sorts of possible ignorance will of course be culpable in a person who is supposed to know in virtue of his office or position.

Then, too, there is the distinction between vincible and invincible ignorance. Vincible ignorance is that which an individual can overcome with a reasonable amount of effort. Invariable ignorance, by contrast, can be overcome only with a substantial effort, if at all. If something significant is at stake—either *prudentially* in affecting a person’s well-being or *morally* in affecting the well-being of others—we would expect people to devote duly proportionate efforts to remove vincible ignorance and would fault them (*prudentially* or *morally*) for not doing so.

Display 1.1. Types of ignorance

	<i>One can remove</i>	<i>One cannot remove</i>
One ought to remove	Culpable ignorance	(Case excluded)
One need not remove	Venial ignorance	Invincible (and thereby venial ignorance)

Note: Venial ignorance is always vincible. The inevitable (invariable) is never culpable (blameworthy). Invincibility is an effective excuse.

The distinction at issue accordingly has a significant ethical bearing. Since (by hypothesis) the mind of vincible ignorance lies in an individual's power, the voluntaries required for ethical or moral appraisal are present. Catholic theology, following the lead of St. Thomas Aquinas, condemns as a sin the vincible ignorance of those who—despite opportunity to the contrary—remain uninformed regarding the doctrines of the church.

Unavailable ignorance is ipso facto venial. And of course ignorance will always be both whenever it is inevitable.

The overall situation can be dependent as per display 1.1. It should be noted that invincible ignorance is always ipso facto venial: invincibility excuses—no culpability attaches to that which is inevitable and cannot be helped. But what of that which can be helped but only by extraordinary effort—ignorance that can indeed be removed but requires laborious inquiry or elaborate reasoning? St. Thomas Aquinas holds that this too diminishes culpability to a nullity.

There are four key sources of inevitable ignorance: unavailable factuality, statistical immorality, stochastic variability, and chaotic unpredictability. Accordingly, there are large areas of unknowing where the ignorance at issue is nowise culpable but rather inherent in the very nature of the realities within which the cognitive efforts of *Homo sapiens* have to unfold.

PRESUMPTION AS A GAP-FILLER FOR IGNORANCE

Nature abhors a vacuum. So does the human mind. We try not to let the gaps in our knowledge be mere empty blanks, so we fill them in with speculation and suppositions. The cognitive instrument that does the work here is presumption, which often serves as a placeholder for knowledge. For the reality of it is that we operate with a source of standard perceptions of presumption—of how to proceed in the absence of evidence to the contrary. These include such presumptions as conformity, normalcy, and symmetry, all of which envision having the things we do not know accord harmoniously with those that we do. (Nobody expected the other side of the moon to offer much beyond a variety of craters.)⁷

Ignorance is thus subject to a wide variety of presumptions. First is the universal that the people we encounter actually know the things that any normal intelligent person would be expected to know: that people need air to breathe, that stabbing people causes pain and does harm, etc. Other presumptions govern matters that people would be expected to know *ex officio*—as doctors, plumbers, babysitters, etc. Barring blue-ribbon excuses (going mad, sustaining brain damage, etc.), ignorance that rises counter to such presumptions is culpable: someone who exhibits ignorance here ought not to do so and is thereby guilty of a virtually ethical transgression. By contrast, ignorance is venial—understandable and excusable—when it exists in circumstances where there is no good reason why there should be any knowledge to the contrary. All of these things that people cannot possibly be expected to know—and, above all, those they cannot possibly know—afford instances of venial ignorance.

We standardly operate on the presumption of an absence of culpable ignorance—that people know the sorts of things which, under the circumstances, they ordinarily would and certainly should be aware of. For practical purposes we can convert the dictum that

“Ignorance of the law is no excuse” into an expanded counterpart: “Ignorance of readily available fact has no excuse.”

THE EXTENT OF IGNORANCE

The situation of knowledge is not that of a crossword puzzle where the amount of what is unknown can somehow be measured in advance. We can form no sensible estimate of the imponderable domain of what can be known but is not.

Some writers analogize the cognitive exploration of the realm of fact to the geographic exploration of the earth. But this analogy is profoundly misleading. The earth has a finite and measurable surface, and so even when some part of it is unexplored, its magnitude and limits can be assessed in advance. Nothing of the kind obtains in the cognitive domain. The ratio and relationship of known truth to knowable fact is subject to no fixed and determinable proportion. Geographic exploration can expect eventual completeness, cognitive exploration cannot.

What is the extent of our ignorance? Just how vast is the domain of what we do not know? When confronted with these questions there lies before us the temptation of the analogy of global exploration with its property between “the known world,” on the one hand, and the unexplained *terra incognita*, on the other. Now once it was grasped that the earth can be viewed as what is, at least roughly, a large sphere, it becomes possible to estimate its surface area and thereby to establish a proportion between the area of what has been explored and the unexamined remainder. But this picture of geographic knowledge is clearly missing in the case of knowledge at large. There just is no *a priori* way of measuring the size of the domain of *possible* knowledge in comparison with the domain of *available* knowledge. The idea of establishing a proportion here founders

in the total infeasibility of making a here-and-now assessment of the extent of our ignorance.

That our knowledge is *pragmatically* sufficient for our immediate purposes—in enabling us to answer the questions that then and there confront us—is something that is in principle determinable. But that it is *theoretically* adequate to answer not just our present questions but those that will grow out of them in the course of future inquiry is something we can never manage to establish. To be sure, we can compare what one person or group knows with what some other person or group knows. But mapping the realm of what is knowable as such is beyond our powers.

There are, of course, finite fields of knowledge. There is only so much you can know (nonrelationally, at least) about the content of Boston's 1995 telephone directory—namely, the totality of what is in its pages. But that is only the case because here “what *can be* known” and “what is known” actually coincide. But this sort of thing is the case only in very special circumstances and never with respect to areas of natural science such as medicine or physics that deal with the products of nature at a level of generic generality.

Although ignorance lies at the core of this book, its deliberations are not an exercise in radical scepticism. It does not propose that knowledge about the world is unavailable to us. Instead, it contemplates that, despite whatever we may come to know, there are some matters about which we are destined to remain ignorant, and that among the things that we can get to know about are far-reaching facts about the nature and extent of our own ignorance.

WHY ARE WE SO IGNORANT?

Why can't we master a foreign language within a single week's effort or learn calculus in a fortnight? What explains our manifest cogni-

tive deficiencies and limitations? Why don't we know a lot more than we do?⁸

This question is one that can in principle be answered in evolutionary terms.⁹ But it has two importantly different aspects: (1) Why aren't we comprehensively smarter by way of enhanced mind power for the species as a whole, and (2) Why aren't we statistically smarter by way of an increase in the relative proportion of smart people within the presently constituted range of intelligence levels? Let us consider these issues one at a time.

To be a substantially smarter species, we would, for starters, need a much bigger brain on prevailing bioengineering principles. To manage this would require a larger—less agile—body, forcing us to forgo the advantages of maneuverability and versatility. To process twice the information would require a brain of roughly four times its present size. But to quadruple our brain weight we would need a body sixteen times its present weight.¹⁰ A body of so great a weight is not only extremely cumbersome but involves enormous demands for energy. The most plausible and probable move would then be to opt for a very different ecological niche and take to the water, joining our mammalian cousins, the whales and dolphins. The stimulating surroundings of a land environment, with its invitations to communal socialization, division of labor, and technological development, would all be denied us. That gain in brain power would have come at an awesome cost, the sacrifice of the collective intelligence of the social institutionalization of tool-using creatures. The price is one that evolution cannot afford.¹¹

There remains, however, the question of why we humans should not be smarter by way of a statistical improvement in the proportion of very smart people in our existing species. With this shift of questions, we now move from the issue of bioengineering a more intelligent species to the development of a more intelligent population—

one in which the percentage of people who would qualify as superior in intelligence by present standards would be substantially enlarged.

We humans are as smart as we are because we need to be so in order to function as the type of creature we have become. The reason why we are not a great deal smarter is not that “ignorance is bliss,” but rather because a significantly higher level of intelligence would actually be biologically counterproductive—if not for the individual, then for the species. Indeed, it is far from clear that a confabulation of Einsteins would manage a human community better than one of “average Joes.”

As long as the proportion of clever people in a society is fairly small, random interactive encounters will statistically occur among nonclever people. But in increasing the proportion of the clever, we also increase the chances of unequal encounters. Insofar as society benefits by harmonious interpersonal transactions, increasing the proportion of the clever would not advantage the group. Evolution would thus presumably militate against it.

The main benefit of smarts is learning by experience. But whether one is an individual or a species, experience adapts an individual to the prevailing conditions. And in a changing world, this can be far from beneficial. Another benefit of smarts is that of enabling individuals to get what they want more efficiently and effectively. But as every parent of a small child knows, what you want is not always what is good for you. There are many conditions and circumstances in which the processes and exercises of intelligence can be counterproductive.

If species endurance is the name of the game with regard to benefit, then the jury is still out on whether intelligence is all that advantageous. Dinosaurs may well outperform *Homo sapiens* in this regard, not to speak of cockroaches. And if proliferation is the name of the game, we are not even in the same league with ants.

Moreover, the social dimension of the matter also comes into play

here. Consider the following sort of case. You and I interact in a competitive situation of potential benefit that has a roughly zero-sum character, with one party's gain as the other's loss. Two alternatives are open to each of us to collaborate with the other, or to try to out-wit him. If we collaborate, we shall share the resultant benefit (say by each getting one-half). If we compete, then the winner takes all; whoever succeeds gains the whole benefit. The overall situation thus stands as depicted in display 1.2.

Display 1.2. Hypothetical payoffs in a situation of competition

	<i>Fortune favors me</i>	<i>Fortune favors you</i>
We collaborate	$0.5 B / 0.5 B$	$0.5 B / 0.5 B$
We fail to collaborate	$B / 0$	$0 / B$

Note: The table entry B represents the gains for the two parties you and me, respectively.

If I see my chances of winning as given by the probability p , then my expectations stand as follows:

$$EV(\text{collaborate}) = p(0.5 B) + (1 - p)(0.5 B) = 0.5 B$$

$$EV(\text{compete}) = p(B) + (1 - p)(0) = p(B)$$

So long as p is less than one-half—that is, as long as my subjectively appraised chances of winning are less than even—collaboration is the sensible course relative to the balance of expectations. But when p exceeds one-half, the balance moves in favor of noncooperation. If one views the benefits of self-reliance optimistically, then decision-theoretic rationality inclines against cooperation; it favors going one's own competitive way and taking one's chances. On the other hand, people who see themselves as comparatively more clever are less likely to collaborate.

Overall, two counterbalancing forces are operative: the one a pri-

marily natural tendency toward increasing the proportions of the highly able, and the other a primarily social tendency toward the maintenance of a cooperation-compelling diversity. If we humans were by and large smarter, we would, no doubt, be able to manage various interactions with nature somewhat more successfully. Our ability to manipulate our environment cognitively and physically—to explain, predict, control—would be enhanced. But our interactions with one another would be subject to an increased temptation for people to try to outsmart their fellows. Rational calculation regarding potentially competitive interactions would not favor the course of competition, of trying to outwit. The socially beneficial impetus to cooperation becomes undermined. In a way, statistical inferiority serves as an equalizer. And this is all to the general good. The natural outrage we feel, even as children, against noncooperation and people who do not play fair is patently connected in the evolutionary order with the fact that most of us draw substantial benefits from a system in which people play by the rules. Accordingly, if humans were proportionately more intelligent than we are, there would be fewer chances of socially benign encounters.

As the bee illustrates, the evolution of cooperation certainly does not require individual intelligence. Quite to the contrary. As the number of clever people who pride themselves on strength of intellect increases, social cohesion becomes more difficult to obtain. University faculties are notoriously difficult to manage. Experts are thorns in the sides of popes and presidents alike: no sect manages to keep on easy terms with its theologians. (Anyone who is familiar with the ways of an intellectual avant-garde—such as the Bloomsbury circle—has some idea of the difficulties of socializing people who see themselves as more than ordinarily clever.) It is easy to envision how in numerous circumstances intelligence militates against socially benign cooperation.

These deliberations yield the odd-sounding lesson that evolution-

ary pressure is a two-edged sword that can act in opposed directions concerning the development of intelligence. Evolution is a process in which the balance of cost and benefit is constantly maintained in a delicate equilibrium. And this general phenomenon is vividly illustrated in the particular case of our cognitive capacities. On the one hand, we humans are not less intelligent than we are, because if we were, we would incur an evolutionary disadvantage in our physical dealings with nature. But analogously, we are not more intelligent than we are, because if we were, we would also suffer an evolutionary disability by becoming disadvantaged in our social dealings with one another, since we would no longer feel constrained to cooperate, because the course of events drives home the recognition that we are just not smart enough to go it alone. In its handling of intelligence, evolution, like a shrewd gambler, is clever enough to follow the precept "Quit while you're ahead."

IS IGNORANCE A MISFORTUNE?

Notwithstanding the dictum that "Ignorance is bliss," most would agree that it is, in fact, something of a misfortune.¹² True, for the most part ignorance is unfortunate and regrettable. But not always! There is some modicum of justice to the saying that "Ignorance is bliss." For human life being what it is would bring a full quota of misfortunes to oneself and those one holds dear. And prior knowledge of such developments would greatly augment their distressing impact. The joys of the present would be overshadowed by the anticipations of misfortunes to come. And in other cases where precognition indicates not mishaps as such but merely increased risks, we would often undergo needless worry about misfortunes that may very possibly never arrive. Thus it very much depends whether ignorance is something fortunate or unfortunate. That a terrorist does not know how to make a bomb is fortunate, that he knows where to obtain the nec-

essary materials is not. The status of knowledge in point of positivity/negativity depends not so much on the information as such but on what is done with it.¹³

A HISTORICAL EXCURSUS

Scepticism apart, the most developed theory of ignorance in modern philosophy is that of Immanuel Kant. In his classic *Critique of Pure Reason* (1781), Kant maintained that, while we can know the things we encounter in our experiential interactions with the world's realities, those realities as such (the realm of "things in themselves") are inherently unknowable to us. Accordingly, Kant opened his *Critique of Pure Reason* with the following thesis:

Human reason has this peculiar fate that in one species of its knowledge it is burdened by questions which, as prescribed by the very nature of reason itself, it is not able to ignore, but which, as transcending all its powers, it is also not able to answer. (Avii).

He was convinced that:

In the explanation of natural appearances, on the other hand, much must remain uncertain and many questions insoluble, because what we know of nature is by no means sufficient, in all cases, to account for what has to be explained. (A477/B505)

And Kant was eager to present various concrete examples of such unamenable questions and irresolvable issues.

This peculiarity of our understanding, that it can produce *a priori* unity of apperception solely by means of the categories, and only by such and so many, is as little capable

of further explanation as why we have just these and no other functions of [informative] judgment, or why space and time are the only forms of our possible [sensory] intuition. (B146)

In particular, why the content (as distinguished from the form) of our sensations and cognitions are as they are—their intelligible basis, or *Grund*, as Kant terms it—is an impenetrable mystery for us.

The non-sensible cause of these representations is completely unknown to us, and cannot thereby be regarded as an object. (A494/B522)

And again:

The relation of our sensibility to an object and what the transcendental ground of its [objective] unity may be, are matters undoubtedly so deeply concealed that we, who after all know even ourselves only through inner sense and therefore as appearance, can never be justified in treating sensibility as being a suitable instrument of investigation for discovering anything save always still other appearances—eager as we yet are to explore their non-sensible cause. (A278/B334)

And again:

The much-discussed question of the communion between the thinking and the extended, if we leave aside all that is merely fictitious, comes then simply to this: *how in a thinking subject outer intuition*, namely, that of space, with its filling-in of shape and motion, *is possible*. And this is a question which no man can possibly answer. This gap in our knowledge can never be filled; all that can be done is to indicate it through the ascription of outer appear-

ances to that transcendental object which is the cause of this species of representations, but of which we can have no knowledge whatsoever and of which we shall never acquire any concept. (A393)

What things are in themselves—above and beyond the limitations of our experience—is inaccessible to our thought:

The employment of our categories can never extend further than to the objects of experience. Doubtless, indeed, there are intelligible entities corresponding to the sensible entities; there may also be intelligible entities to which our sensible faculty of intuition has no relation whatsoever; but our concepts of understanding, being mere forms of thought for our sensible intuition, could not in the least apply to them. (B309)

And again:

[Our understanding] does indeed think for itself an object in itself . . . which is the cause of appearance and therefore not itself appearance. . . . We are completely ignorant whether it is to be met within us or outside us, whether it would be at once removed with the cessation of sensibility, or whether in the absence sensibility it would still remain (A288/B345)

And again:

I cannot say, therefore, that the world is *infinite* in space or as regards past time. Any such concept of magnitude, as being that of a given infinitude, is empirically impossible, and therefore, in reference to the world as an object of the senses, also absolutely impossible. . . . I also cannot say that the regress is *finite*; an absolute limit is likewise

empirically impossible. Thus I can say nothing regarding the whole object of experience, the world of sense. (A520/B548)

As Kant saw it, it is the tragic fate of human reason that it cannot escape from questions which it is inherently unable to resolve—not because those questions are in themselves meaningless, but because posing them is (literally) unreasonable in asking of human reason that which, by its very nature, it cannot possibly do.

And so:

Whether the world has a beginning [in time] and any limit to its extension in space; whether there is anywhere, and perhaps in my thinking self, an indivisible and indestructible unity, or nothing but what is divisible and transitory; whether I am free in my actions or, like other beings, am led by the hand of nature and of fate; whether finally there is a supreme cause of the world . . . these are questions for the solution of which the mathematician would gladly exchange the whole of his science. For mathematics can yield no satisfaction in regard to those highest ends that most closely concern humanity. (A463–64/B491–92)

Thus for Kant the factors or forces that productively engender the dramaturgy of our experiences are matters to which we human knowers can have no cognitive access: ours is a world of *phenomena* that has a merely empirical or experiential reality whose underlying ontological or metaphysical basis is transcendental through transcending the reach of our cognitive capacities.

The Scottish philosopher James Ferrier took matters a step further than Kant.¹⁴ Subscribing to the Principle of Sufficient Reason (*Satz vom Grunde*), Kant does not question that we stand committed to the

idea of a nonphenomenal ground (*a ratio essendi*) for the phenomena, a ground which, by its very nature as such, is unknown. Ferrier, by contrast, insists that nescience is not ignorance: that one can be ignorant only where knowledge is in theory possible:

Ignorance, properly so called—that is, the ignorance which is a defect—must not be confounded with . . . a nescience of that which it would contradict the nature of intelligence to know. Such a nescience is no defect or imperfection—it is, on the contrary, the very strength or perfection of reason; and therefore such nescience is not to be regarded as ignorance.¹⁵

One can be ignorant, Ferrier holds, only of that which can be known, and since “things in themselves” are beyond the reach of possible knowledge by finite beings, we cannot be said to be ignorant of them. As Ferrier sees it, “things in themselves” are not a subject for meaningful claims, since such claims are by nature confined to matters regarding that of which we can achieve knowledge.

For Ferrier, *ignorance* was a pejorative term. He sought to deploy the neutral term *nescience* from the mode of unknowing as an issue with a principled and inescapable incapacity to resolve certain questions. Between the lines of Ferrier’s “agnosiology” is the conviction that one cannot speak informatively about unknowables, and whereof one cannot meaningfully speak, one must remain silent. In this context, however, Ferrier was by no means a sceptic. For as he saw it, we can certainly achieve knowledge—at any rate, about the limits of knowledge itself.

Against those of the Leibniz-Wolff School whom he denounced as “dogmatists,” Kant maintained—on basically empiricist principles—that the ultimate ground of existence is ultimately unknowable for us. Be this correct or not—and it is certainly arguable—the fact remains that one must, with Ferrier, distinguish between the nescience

of inevitable unknowing and the contingency of an in-principle separable ignorance. And one must acknowledge that, from the theoretical and philosophical point of view, it is the issue of an in-principle insuperable ignorance that occupies the forefront of interest.