There are things we'd rather not know. Some of these are temporary; we'd like to know them eventually but not just now. Others, less common, are things we never want(ed) to know.

In this post I'll focus on the temporary kind. Temporary ignorance has many uses, some of which are not immediately obvious. I've already mentioned a few of them in earlier posts. One of these is entertainment. Many forms of entertainment require temporary audience ignorance, including all forms of story-telling and jokes. No unknowns? No mysteries? No surprises? Then no entertainment.

Games are an example of entertainment where uncertainty has a key role even in games of skill. A game that is a foregone conclusion is not very entertaining. Games of skill are like tests but more fun. Why? Partly because games have more uncertainty built into them than tests do, and so they tease us with a mix of outcomes due to skill and sheer luck. More than 25 years ago, a clinical neuropsychologist working in a large hospital told me how he ended up exploiting this connection between games and tests. One of his chief duties was to assess the state and recovery of cognitive functions of patients in a head trauma unit—Often victims of automobile accidents or strokes. The well-established tests of memory, motor control and sustained attention had good psychometric properties but they were boring. Some patients refused to take them; others complied but only with a desultory effort.

Then inspiration struck: My colleague noticed that anyone who could manage it would head down the ward corridor to play Space Invaders. Here was a ready-made test of attention and motor control built into a game. Moreover, repeatedly playing the game actually would facilitate patients' recovery, so unlike the standard cognitive tests this "test" had a therapeutic effect. He attached a computer to the back of the game, established benchmark measures such as how long players would last if they did nothing or moved the joystick randomly, and started recording individual patients' results. The results were a clinician's dream—Meaningful data tracking patients' recovery and a therapeutic exercise.

Some psychologists who should know better (e.g., Gudykunst and Nishida 2001) have declared that *the* emotional accompaniment of uncertainty is anxiety. Really? What about thrill, excitement, anticipation, or hope? We can't feel thrill, excitement, or anticipation without the unknowns that compel them. And as for hope, if there's no uncertainty then *there's no hope*. These positive emotions aren't merely permitted under uncertainty, they *require* uncertainty. To my knowledge, no serious investigation has been made into the emotional concomitants of omniscience, but in fact, there is only one human emotional state I associate with omniscience (aside from smugness)—Boredom.

We don't just think we're curious or interested; we *feel* curious or interested. Curiosity and interest have an emotional cutting-edge. Intellectuals, artists and researchers have a love-hate emotional relationship with their own ignorance. On the one hand, they are in the business of vanquishing ignorance and resolving uncertainties. On the other, they need an endless supply of the unknowns, uncertainties, riddles, problems and even paradoxes that are the oxygen of the creative mind. One of the hallmarks of scientists' reactions to Horgan's (1996) book, "The End of Science," was their distress at Horgan's message that science might be running out of things to discover. Moreover, artists are not attracted to obvious ideas, nor scientists to easy problems. They want their unknowns to be knowable and problems to be solvable, but also interesting and challenging.

Recently an Honours student undertaking her first independent research project came to me for some statistical advice. She sounded frustrated and upset. Gradually it became apparent that hardly any of her experimental work had turned out as expected, and the standard techniques she'd been taught were not helping her to analyze her data and interpret her findings. I explained that she might have to learn about another technique that could help here. She asked me, "Is research always this difficult?" I replied with Piet Hein's aphorism, "Problems worthy of attack prove their worth by fighting back." Her eyes narrowed. "Well, now that you put it that way…" Immediately I knew that this student had the makings of a researcher.

A final indication of the truly ambivalent relationship creative folk have with their favorite unknowns is that they miss them once they've been dispatched. Andrew Wiles, the mathematician who proved Fermat's Last Theorem, spoke openly of his sense of loss for the problem that had possessed him for more than 7 years.

And finally, let's take one more step to reach a well-known but often forgotten observation: Freedom is positively labeled uncertainty about the future. There isn't much more to it than that. No future uncertainties in your life? Everything about your future is fore-ordained? Then you have no choices and therefore no freedom. As with intellectuals and their unknowns, we want many of our future unknowns to be ultimately knowable but not foreordained. We crave at least some freedom of choice.

People are willing to make sacrifices for their freedom, and here I am not referring only to a choice between freedom and a dreadful confinement or tyrannical oppression. Instead, I have in mind tradeoffs between freedom and desirable, even optimal but locked-in outcomes. People will cling to their freedom to choose even if it means refusing excellent choices.

A 2004 paper by Jiwoong Shin and Daniel Ariely, described in Ariely's entertaining book "Predictably Irrational" (2008, pp. 145-153) reports the results of experimental evidence for this claim. Shin and Ariely set up an online game with 3 clickable doors, each of which yielded a range of payoffs (e.g. between 1 and 10 cents). The object of the game was to make as much money as possible in 100 clicks. There was a twist: Every time one door was clicked, the others would shrink by a certain amount, and if unchosen for sufficiently many times a door would disappear altogether. Shin and Ariely found that even bright university (MIT) students would forgo top earnings in order to keep all the doors open. Shin and Ariely tried providing the participants with the exact monetary payoffs from each door (so they would know which door offered the most) and they even modified the game so that a disappeared door could be "reincarnated" with a single click. It made no difference; participants continued to refuse to close any doors. For them, the opportunity costs of closed doors loomed larger than the payoffs they could have had by sticking with the best door.

So here we have one of the key causes of indecision, namely a strong desire to "keep our options open," i.e., to maintain positively labeled uncertainty. If achieving certainty is framed in terms of closing off options, we strive to avoid it. If uncertainty is framed as keeping our options open we try to maintain it, even if that entails missing out on an excellent choice. This tendency is illustrated by a folk-wisdom stereotype in the wild and wonderful world of dating-and-mating. He and she are in love and their relationship has been thriving for more than a year. She'd like to make it permanent, but he's still reluctant to commit. Why? Because someone "better" might come along…

What could drive us to keep our options open, refusing to commit even when we end up letting our best opportunities pass us by? Could it be the way we think about probabilities? Try this rather grim thought-experiment: First, choose an age beyond your current age. Then, think of the probability that you'll get cancer before you reach that age. Now, think of the probability that you'll get cancer of the stomach. Think of the probability you'll get lung cancer. The probability you'll get bone cancer. Or cancer of the brain. Or breast cancer (if you're a woman) or prostate cancer (if you're a man). Or skin cancer. Or pancreatic cancer… If you're like most people, unpacking "cancer" into a dozen or so varieties will make it seem more likely that you'll get it than considering "cancer" in one lump—It just seems more probable that you'd end up with at least one of those varieties. The more ways we can think of something happening, the more likely we think it is. Cognitive psychologists have found experimental evidence for this effect (for the curious, take a look at papers by Tversky and Kohler 1994 and Tversky and Rottenstreich 1997),

An even more startling effect was uncovered in a paper by Kirkpatrick and Epstein (1992). They offered people a choice between drawing a ticket from a lottery of 10 tickets, 9 losing and 1 winning, and a lottery with 100 tickets, 90 losing and 10 winning. The participants confirmed that they knew the probability of winning either lottery was .1, so there was no effect on their probability judgments. Nevertheless, when asked which they preferred most chose the 100-ticket lottery. Why? Because that lottery gave them 10 ways of winning whereas the other gave them only 1 way.

The more options we keep open, the more "winning tickets" we think we hold and the greater the hope we might get lucky. When we've committed to one of those options we may have gained certitude, but luck and hope have vanished.