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The Scientific Mind of Ben Franklin

Jerry Weinberger

Had Benjamin Franklin managed to outwit the Grim Reaper, he would have turned three hundred years old in 2006, and would probably have been making plans for another three hundred. Journalist, scientist, diplomat, and vendor of the virtues, Franklin stands in our imagination as the iconic "First American," the self-made man and proud inventor of the future. His scientific achievements were indeed interesting and impressive—especially his research on electricity and his invention of the lightning rod. But equally interesting, and far more complicated, was Franklin's idea of science. He was, you might say, our first home-grown Baconian—seeing scientific ingenuity as the greatest delight and truest redeemer of human life.

In 1780, Franklin complained to his friend and fellow natural philosopher Joseph Priestley of the disparity between scientific and moral progress: so badly constructed were most human beings, said Franklin, that Priestley should have killed boys and girls instead of innocent mice in his experiments with mephitic air. How much better than the bratty kids were the results of these experiments. Scientific progress, Franklin commented,

> occasions my regretting sometimes that I was born so soon. It is impossible to imagine the height to which may be carried in a thousand years, the power of man over matter. We may perhaps learn to deprive large masses of their gravity, and give them absolute levity, for the sake of easy transport. Agriculture may diminish its labor and double its produce; all diseases may by sure means be prevented or cured, not excepting even that of old age, and our lives lengthened at pleasure even beyond the antediluvian standard.

Later on, in letters to other friends, Franklin trimmed his timetable by a full nine hundred years, saying that a mere one hundred would see modern science produce discoveries of which he could have "no conception." And he said again that the "art of physic" would advance so far and so fast that mankind would be able to avoid diseases and live as long as "the Patriarchs in Genesis; to which I suppose we should make little objection."

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In these comments Franklin makes it clear that even the antediluvian standard is not insuperable. Franklin says that it's impossible to imagine the height to which scientific power will rise, and that height would therefore have to include what we *could* imagine: the conquest of death as such. If Franklin had lived three hundred years but died just today, we can well imagine him lined up next to Ted Williams in a cryonic tube—although doubtless the careful Franklin would have made sure that his head didn't get knocked off in the process.

Charity and Faith

But why would Franklin comment that he supposes we "should make little objection" to all this? Why any objection at all? The answer is that Franklin knew there was a fly in the ointment of Bacon's project for the conquest of nature and the relief of man's estate. As Franklin makes clear in his letters, from the scientific point of view aging and even death are potentially curable diseases. Yet he also knew that from the biblical point of view death is the wages of sin, and that believers in the biblical account of man's origins and fall might see the Baconian project as a prideful and blasphemous attempt to play God. Franklin's wisecrack about kids, mice, and mephitic air has a serious and even nasty edge that reminds us of the current debate about stem cell research and human cloning: it makes a lot more sense to be worried about these matters if one believes that human beings are sinful but created in the "image of God" than if one believes we are on our own in this world, suffering, curious, and never to be judged.

Franklin knew perfectly well that the scientific progress he envisioned wouldn't always jibe with the faithful view of life. In 1751, Franklin published a piece in the *Pennsylvania Gazette* called "Appeal for the Hospital." In the *Autobiography*, Franklin describes his maneuvers on behalf of the hospital project as his most charitable use of political cunning. The ruse consisted of what must be history's first matching grant. Franklin convinced the Pennsylvania Assembly, including many of its members in no mood for such charitable spending, to pledge money toward the hospital on the condition that the sum would be matched by private contributors. That condition carried the day in the assembly, because the members opposed to the charity thought the private contributions would never be raised, giving them a reputation for virtue without having to the pay the price. Franklin then used the pledge from the assembly to cajole the private donors into giving one dollar when they might otherwise have been asked for two. Thus the conditional clause in the assembly bill, said Franklin, "worked both ways."

This story puts a charming gloss on the scheme for the Philadelphia hospital, by which Franklin managed to turn the selfish impulses of his fellow citizens to charitable ends. But the original essay in the *Gazette* also contained a serious reflection on the relationships among charity, suffering, and disease. Franklin argues that the remarkable thing about living creatures is that all, regardless of kind or individual characteristics, are subject to disease. Even Achilles, the ancient poets noted, was vulnerable in his heel. Of all the animals, however, man is unique in being subject to the most diseases, "whether they are the effects of our intemperance and vice, or are given us, that we may have a greater opportunity of exercising towards each other that virtue, which most of all recommends us to the Deity, I mean CHARITY."

Franklin follows up with three references to the Gospel according to Luke: the story of the Good Samaritan, the story of the rich man and Lazarus, and the story about Jesus and the ten lepers. The lesson to be drawn, says Franklin, is that care of the sick, regardless of who they are, "seems essential to the true spirit of Christianity." In particular, the story of the rich man and Lazarus shows that "*I was sick, and ye visited me* is one of the terms of admission into bliss, and the contrary, a cause of exclusion."

Franklin is here quite delicate: the "exclusion" of which he speaks is condemnation to the anguishing flames of hell. But he immediately gets down to brass tacks when he says that our circumstances are subject to change according to providence, that we should help each other and not harden our hearts against the lowly who are sick lest we find ourselves in their places, and that what we may suffer for hard-heartedness in this world pales before what we might suffer for it in the next. The best form of charity for the sick is building a hospital, where skillful professionals can heal the sick with more than just their devotion. Even the pagans thought that nothing made men more like the gods than helping the sick, and if the pagans felt this way how much more should we expect from Christians, for whom the inclination of duty is enhanced by the sanctions of revelation.

Apart from the rhetoric of self-interest rightly understood that he uses in the essay—the hospital will help others but also help all who give—Franklin clearly and most stirringly appeals to the idea that disease is the occasion for charity, for the practice of which we are rewarded with heaven and for the neglect of which we are punished by the fires of hell.

It is one thing to tend to the sick, even with a hospital and improved methods for alleviating suffering, and quite another to put an end to the very occasion for charity by conquering human disease. One might make the heterodox argument that working toward the technological con-

quest of disease and death is the highest charity, and that those devoted Baconians who die before the full conquest of death will be resurrected by those who work afterward, with their dead bodies brought skillfully and charitably back to life. One might say that all this is the working out of divine providence. Only such an argument could square the Baconian project, as Franklin understood it, with any belief in the seriousness of Franklin's piety.

But Franklin knew this argument would be a hard sell to his Calvinist and Presbyterian neighbors. For them, taking salvation into one's own hands is the essence of the sin of pride. And the Baconian way to self-salvation could be seen as the most obnoxious way imaginable—or at least the most foolish, since the omnipotent God, who has miraculous command over all the motions of nature, has already determined who will and will not be saved at the real end of days.

Faith and Reason

These reflections bring us back to Franklin's nasty crack about boys, girls, and experiments with mephitic air. To the pious believer, such dark humor is deadly serious, falsely treating man as both a thing and a god, available for use and answerable to no power higher than the scientific will. Without the divine law, every moral slope in the project of science is a slippery one. At the same time, those who think we're on our own in this world suspect that the believers will use the slippery slope bogeyman, at crucial turns, to butt into and retard the humanistic project of modern science.

The two sides of this cultural divide, while generally tolerant fellow citizens, inhabit quite different mental worlds. The humanists, when they gather together, think the believers are all really nuts at best, or nuts and bullies at worst. The believers, when they gather together, think the humanists hold them in contempt while snootily taking the culture to hell in a hand-basket. Yet both sides believe in the separation of Church and State and freedom of religion, albeit for different ends: the believers to protect the integrity of religious life, the humanists in the hope that society will become indifferent to religion. This divide heats up from time to time, as we have seen in recent debates over evolution, stem cells, and cloning. And as the scientific project continues in the Franklinian direction, concerns about man "playing god" will loom ever greater and require ever more clever political management by Franklin's Baconian heirs.

Yet it would be a mistake to treat Franklin as a simple or straightforward partisan of the humanistic side of the modern divide. Simple

and straightforward he was not. Franklin, it turns out, can be found consorting with both the rationalists who believe that human beings can live perfectly well according to reason alone and the believers who think life impossible without the miraculous experience of conscience and the revealed word of God.

Franklin was unquestionably among the greatest scientists of his age. While he may be best remembered today for inventing bifocal spectacles and the stove that bears his name, in his own day he was known around the world as the inventor of the lightning rod—considered by some historians of science to be the first example of the Baconian dictum that pure science would yield results of practical and material benefit for man. Franklin's pioneering research on electricity, including the lightning experiments he famously proposed and performed, established that the static charge experimenters were tinkering with in laboratories was the selfsame phenomenon of awful beauty and humbling destructiveness that came from the skies. Many of the basic discoveries and even terms that we still use in discussing electricity—like "positive" and "negative," "electric motor," and "electrical battery"—were made and coined by Franklin. So important was Franklin's work on electricity that Priestley, himself no scientific slacker, put it on par with the work of Newton.

If his scientific work begins to establish his rationalist credentials, his frequent mockery of religion might at first glance seem to finish the job. From 1730 until the mid-1740s, Franklin published a series of hoaxes in his *Pennsylvania Gazette* making fun of enthusiastic believers. In 1730 he published an account of an absurd trial by weights and then water of people accused of witchcraft, which they had used to make their neighbors' sheep dance and hogs speak and sing psalms. Two of the accused (a wizard and a witch) and two of their accusers (a man and a woman) were first weighed against an enormous Bible, on the assumption that if any were in fact either wizard or witch the Bible would outweigh them. The result? "Their lumps of mortality severally were too heavy for Moses and all the Prophets and Apostles." The accusers and their accompanying mob then demanded a trial by water, so the accused and their accusers were bound and tossed in the river: if they floated, rather than sank, then witches or wizards they were. This time things worked better—all but a very skinny accuser floated. The reasonable people in the crowd assumed that anyone would float until they swallowed enough water to sink. But the rest of the mob had another objection—the women might have floated because their shifts and garters had held them up. So, says Franklin, "it is said they are to be tried again the next warm weather, naked."

Franklin later made up and published a report of a deranged man near Sahaukan who demanded that his wife stick her tongue in his mouth, which out of fear she did. The man then bit off a large chunk and "taking it between his fingers threw it into the fire with these words, *Let this be for a Burnt-Offering.*" This bit of grotesquery was followed up by a mocking story about Benjamin Lay, whom Franklin described as "the Pythagorean-cynical-christian Philosopher," who protested tea drinking by making public sacrifice of his dead wife's expensive china. The sacrifice failed, however because the crowd knocked Lay down and made off with the stuff before he could do much with his hammer. And then there was the most amazing gag of them all:

> About two weeks ago, one John Leek, of Cohansie in West-New-Jersey, after twelve months deliberation, made himself an eunuch (as it is said) for the Kingdom of Heaven's Sake, having made such construction upon Mat. xix.12. He is now under Dr. Johnson's Hands, and in a fair way of doing well.

These stories—about dancing sheep and psalm-singing hogs, the absurd trial by scales and water, the deranged tongue roaster, the crack-pot china breaker, and the lunatic self-made castrato for the kingdom of heaven's sake—surely make us think of the believers as candidates for bedlam. Moreover, when we're told that the witches outweighed Moses and all the prophets and apostles, it's impossible not to think of all the miracles depicted in the Bible, which if they were described as having happened yesterday would be written off (at least by rationalists and even by many believers) as frauds or as the ravings of foam-at-the-mouth lunatics. That's close to what Hobbes—the greatest rationalist and atheist of the Enlightenment—did in fact say.

But for all of his rationalistic mockery of crazed religious enthusiasm, Franklin was the publisher and lifelong friend of the New Light evangelist George Whitefield, a preacher whose power to bring foam to his listeners' mouths was well known. And perhaps more important, in 1730 Franklin published another hoax about religion that has an altogether surprising and telling twist.

The hoax takes the form of a letter written to the editor of the *Gazette*, asking for advice about a spiritual matter. The writer opens by noting that the age they live in abounds with freethinkers and followers of Spinoza and Hobbes, who despise revelation and deny the existence of spirits in general and the devil in particular. The writer was convinced by these freethinkers and had no fear of demons and hobgoblins. But then something happened

that changed his mind: He met a perfectly sober and honest Reverend Gentleman who told him a story of the miraculous appearance of the Devil. The Reverend and some colleagues had met in town to discuss measures for preventing the spread of atheism. After the meeting they stayed the night in a hotel, where they were tormented when they went to bed at ten o'clock by the beating of a drum that no one else in the establishment could hear—the Devil was at work against these crusaders against atheism. The Reverend's story convinced the writer, who came to believe in spirits.

But his newfound faith was staggered by two additional events: First, it was pointed out to the writer that the German Divines say the Devil does his work after midnight, and not in the earlier night described by the Reverend. Second, the same man related to the writer a story about a drunken preacher called from a pub to serve at a funeral. When in the course of the service the soused preacher said "I heard a voice from heaven," the preacher's equally soused drinking companion, who had come along for the service, yelled out "By G--- that's a d-----'d lie, for I have been drinking with you all day at Mother--------'s, and if you had heard the voice, I should have heard it too, for my ears are as good as yours." In the light of all this, says the writer, should he still believe the Reverend?

Just a few days later Franklin sent another letter to himself at the *Gazette* under the name Philoclerus, taking the *Gazette* editor to task for printing an obvious spoof of believers and the clergy who lead them. Even a nonbeliever should know better than to mock the clergy, given the support provided by the clergy for virtue and morality, without which society could not long last. But then Franklin has Philoclerus make a very surprising move. As regards the intervention of spirits in our lives, Philoclerus says:

> Besides, as far as we know, *there is nothing impossible in the thing itself*: We cannot be certain there are no spirits existing; it is rather highly probable that there are: But we are sure that if spirits do exist, we are very ignorant of their natures, and know neither their motives nor methods of acting, nor can we tell by what means they may render themselves perceptible to our senses.

Hobbes stated the classical rationalist position on the issue of spirits in chapter twelve of *Leviathan*. According to Hobbes, belief in spirits springs from men's fear of unknown causes, especially the unknown causes of their good and bad fortune, about which they live in perpetual anxiety. Since this fear must have an object, and since the object cannot be seen, "there is nothing to accuse, either of their good, or evil fortune, but some *power*, or agent

invisible." And as to the ontological character of these invisible agents:

> they could not by natural cognition, fall upon any other conceit, but that it was the same with that of the soul of man; and that the soul of man, was of the same substance, with that which appeareth in a dream, to one that sleepeth; or in a looking-glass, to one that is awake; which, men not knowing that such apparitions are nothing else but creatures of the fancy, think to be real, and external substances; and therefore call them ghosts…and thought them spirits.

Hobbes concludes that the idea of an incorporeal spirit is just a combination of "words of contradictory signification" of which men "can never have the imagination of any thing answering to them."

After his opening comment about the possibility of spirits, Franklin's Philoclerus responds *precisely* to this Hobbesian argument:

> Those who have contemplated the nature of animals seem to be convinced that spirit can act upon matter, for they ascribe the motion of the body to the will and power of the mind. Anatomists also tell us, that there are nerves of communication from all parts of the body to the brain: And philosophers assure us, that the vibrations of the air striking on the auditory nerves, give to the brain the sensation of what we call sound; and that the rays of light striking on the optic nerves, communicate a motion to the brain which forms there the image of that thing from which those rays were reflected.

We find, says Philoclerus, that a blow on the eye creates a sense of light, which no one else can see, where there is none (what Hobbes calls an apparition). And then he concludes:

> Now, how can we be assured that it is not in the power of a spirit *without* the body to operate in a like manner on the nerves of sight, and give them the same vibrations as when a certain object appears before the eye (though no such object is really present) and accordingly make a particular man see the apparition of any person or thing at pleasure, when no one else in company can see it?

Thus could a person hear a spirit or the voice of God, and thus could a person become inspired. At the very least, a believer could say that we experience the interactions of will, mind, and matter all the time, even though these interactions are beyond our merely human powers of comprehension. Why not so also for God, mind, and matter?

With this brilliant stroke, Philoclerus shows that Hobbes's argument cuts no ice at all. Hobbes does not prove the impossibility of spirits; rather, he shows that if one begins with materialistic presuppositions (that spirit and mind do not exist), one ends up with a materialistic conclusion: that there are no spirits. Hobbes's dogmatic materialism in no way demonstrably refutes the evidence as presented in the miracle of the drum—especially the experience as reported by an honest and learned man (not some obvious lunatic, drunk, or fraud) who would not lie since he knew that he would be ridiculed by "every other unthinking skeptic in the country."

As the spoof about the devil and his drum reveals, Franklin came to suspect that the standard rationalism of the Enlightenment, which claimed that natural science and metaphysics could prove that miracles do not exist, was really just so much circular reasoning. If you begin with the assumption that spirits do not exist and everything in the world is matter in motion to be studied and manipulated by science, then miracles, including all forms of inspiration, are impossible. But this conclusion is only true, of course, if you begin with the unproven assumption.

The Skeptical Baconian

Ultimately, Franklin concluded that rationalistic science could never prove the believers wrong. He also concluded that the rationalists were unlikely to admit to this fact. They turned out to believe in their rationalism as fervently as the believers believed in their miracles, especially the miracle of conscience, or of the voice and spirit of God moving within. Moreover, if one were to push this fact in the rationalists' faces, they could get just as angry as believers about challenges to their faith. Franklin, it turns out, was a freethinking critic of Enlightenment freethinking.

The conventional and current take on Franklin—that he was a pragmatic moralist and serious Enlightenment Deist and eventually an American patriot—is flat wrong. The recent chorus of Franklin biographers, including academic historians such as Gordon Wood, H. W. Brands, and Edmund Morgan, has been bamboozled by Franklin's ironic literary style, and tone-deaf to Franklin's radical, philosophical, deadpan sense of humor.

Franklin was no Deist. He was no pragmatic moralist. And he wasn't really "The First American." Franklin was, rather, the first American Baconian. He was also a profound philosopher, deeply skeptical of religion (especially the metaphysical conceits of Deists) and of our everyday moral intuitions. He was also profoundly skeptical of the intellectual foundations of rationalism and the Enlightenment. And he was, to put his politics in

a nutshell, a political constructivist and libertarian. Franklin was not as American as apple pie, but he was as American as the corndog.

Franklin was indeed an American "first," but a first only as one of the two sides of the American experience: America as the Baconian engine of individual liberty and modernity—and modernity understood especially as the conquest of nature and the relief of man's estate, and as an ever expanding carnival (where the corndogs are the best) of novelty and change. But Franklin was not an American first in the sense of belonging to a democratic moral community and light unto the nations. He was certainly no partisan of America understood as a Christian political community. And he was not an American patriot by way of his attachment to republican and democratic political ideals and forms.

Franklin signed on to the republican and revolutionary causes very late in the game and only when political office in the British government had become hopelessly out of reach and the imperial breach hopelessly beyond repair. As regards political forms, any type of regime would do so long as its end was individual liberty, security, and technological progress. He didn't believe in natural rights, including the right to private property—although he thought private property and limited government very good practical ideas. At the height of the revolutionary struggle Franklin wrote two brief pieces—one a hoax and another a letter—in which both sides of the dispute were depicted as cruel moral fanatics. And when the fighting was all over, he commented to his friend Joseph Priestley not that justice had prevailed, but that the whole conflict was a waste attributable to (mostly British) stupidity.

Franklin was for America as the engine of modernity, not for America the Beautiful. And he was pragmatically open to whatever political forms might emerge from the march of technological progress (he would have liked globalization, had he lived long enough to see it). But all this notwithstanding, Franklin, as we see from the comic pieces about the devil and his drum, had no illusions about the withering away of religion and religious enthusiasm, or of the moral attractiveness of America as a shining city on a hill. Were such withering to occur, he would not have minded it all that much. But he didn't hold his breath and he didn't think that most partisans of modernity and rationalism could defend themselves intellectually against those who feel the miracle of conscience and the spirit of God moving within.

Franklin settled the issue of God and conscience, for the negative, in his own mind, but not on grounds that even the most zealous rationalists would embrace. After doing so, he often commented that arguing against

religion is like releasing a tiger—the freed beast might well devour its deliverer. The single most important experience of his life, and one he never forgot, was being run out of Boston by the good people of the town who, the victims of his youthful refutations of their religious beliefs, pointed at him in horror "as an infidel or atheist." Franklin continued his aggressive refutations for a few years while in London and Philadelphia, but he eventually gave them up, deciding just to keep his mouth shut. By that time he had learned enough about the longings of the human soul so as not to fall prey to Enlightenment, modernist, and rationalist fantasies about the believers. And, having wrestled with and thought through his own spiritual experiences, he could not and did not feel contempt for those believers, even if he did see their piety as a potential threat to uninhibited progress.

For all his enthusiasm about the conquest of nature, Franklin still kept a skeptical eye out for the problems ahead—and the main problem in his mind was the persistent human desire to live under God rather than by human ingenuity alone. And for all of his rationalism, Franklin was aware that rationalists, armed with their death-busting powers, could still get too big for their britches. In their conflicts with the faithful, they could get carried away, becoming fundamentalists of science with no patience for or understanding of those who worry about man's playing God. And by becoming scientific fundamentalists, they would become less skillful defenders of science in a nation still moved by religious zeal.

A Science of Petty Things

To puncture such fundamentalism, Franklin was not above making fun of the scientific and technological project. Probably in 1781, but surely while Franklin was in Passy outside of Paris, he wrote a short and comical proposal "To the Royal Academy of ****." He starts out by saying that the Academy had proposed a prize for the best answer to a mathematical question because its members could not imagine a question of physics that would have more utility for human beings. In response, Franklin proposes a physical question that *will* have such utility.

It is well known, says Franklin, that digestion produces great quantities of wind in the bowels and that permitting it to escape is usually offensive to company because of the awful smell. Well-bred people forcibly restrain the efforts of nature to produce this discharge, so as to avoid giving offense, and as a result suffer "great present pain" and "future diseases," such as colic, ruptures, and tympanites that are often harmful and

sometimes fatal. And, were it not for the "odiously offensive smell" people would not mind discharging their wind in public any more than they mind blowing their noses. So "his prize question therefore should be, to discover some drug wholesome and not disagreeable, to be mixed with our common food, or sauces, that shall render the natural discharges of wind from our bodies, not only inoffensive, but agreeable as perfumes."

What follows is an even more hilarious account of why such a project is not foolish and is, on the contrary, based on real experimental evidence. We already know some means for varying the smell. One who eats meat with lots of onions will "afford a stink that no company can tolerate," whereas one who dines only on vegetables "shall have that breath so pure as to be insensible to the most delicate noses; and if he can manage so as to avoid the report, he may anywhere give vent to his griefs, unnoticed." But since few will be vegetarians, it is worth experimenting to see if something such as powder of lime might transform the air in our bowels, just as quicklime corrects the fetid air of a privy. After all, he notes, a small pill of turpentine changes the disagreeable smell of asparagus-laced urine to the pleasant odor of violets.

The discoverer of the gas pill will receive immortal honor, which is proved by the fact that other philosophers have achieved fame for much less useful discoveries: Are there twenty men in Europe happier because of what they have learned from Aristotle? What are Descartes' vortices compared to the whirlwinds in men's bowels? What is Newton's mutual attraction of matter by comparison to matter's mutual repulsion, with its cruel distensions? Can the pleasure of a few philosophers when they gaze on the seven threads of light separated by the Newtonian prism compare with "the ease and comfort every man living might feel seven times a day, by discharging freely the wind from his bowels? Especially if it be converted into a perfume."

In the spirit of Martha Stewart, Franklin then goes on to say that "the generous soul, who now endeavors to find out whether the friends he entertains like best Claret or Burgundy, Champagne or Madeira, would then enquire also whether they chose musk or lily, rose or bergamot, and provide accordingly." The freedom of "*ex-pressing* one's *scent-iments*," says Franklin, is infinitely more important to human happiness than is the freedom of the press or the freedom of abusing one another, for which the English are so ready to fight and die.

Indeed, "this invention, if completed, would be, as *Bacon* expresses it, *bringing philosophy home to men's business and bosoms.*" By comparison to the universal utility of such a project, says Franklin, the science of all

the philosophers mentioned and the mathematical question posed by the academy are "all together, scarcely worth a farthing"—although he puts a hyphen in the word farthing between the "t" and the "h" (FART-HING). It would take a pretty stuffy sourpuss not to laugh at this joke. Bringing philosophy home to our business and bosoms? Guess again. Imagine the spectacle of well-dressed, elegant diners (perhaps at a state dinner) eating foie gras, drinking fine wines, and gassing each other, often loudly, with their intestinal perfumes.

But this hilarious spoof has a definitely serious side. Modern natural science will disclose the truth about the world—as Bacon said, what we can do with nature tells us what nature really is. But even the disinterested pursuit of truth turns out inevitably to redound to our interests—because scientific truth produces ever-greater practical powers at our command.

Franklin suggests the following truths about modern natural science and technology and their powers: We should have no illusions about the nature disclosed by modern science, nor should we have any illusions about the object of scientific benevolence—about the supposed dignity or greatness of the creature (us) to whose interests the courses of nature will be bent. The latent possibilities of intestinal gas are no less dignified or important than the general laws of motion or the courses of the stars and planets. And we, the beneficiaries of natural science, are, among other things, flesh and blood and brains surrounding an alimentary canal, and we are thus as likely to want mellifluous gas as we are to sacrifice for such things as freedom of the press.

With these conclusions Franklin brings us high and mighty conquerors and masters of nature down a peg or two. In doing so, he reminds the rationalists that the believers who fear our playing God have a serious point to make: modern rationalistic human beings should be careful not to think too well of themselves—as if rather than *playing* God they become convinced that they *are* God. For Franklin, that would be humankind's getting too big for its britches, and that kind of pride can always be very dangerous, as was evident even to a non-believer like Franklin.

The Artful Balance

To make this sensibility more concrete, it is perhaps useful to reflect on what Franklin might think of the most recent public dispute between rationalists and fundamentalist believers: the doctrine and the teaching of "intelligent design." Franklin often commented that reflection on the good order of the world—the regular motions of the heavens or the beautiful

organization of nature's flora and fauna, for example—could lead reasonable people to conclude that the world was made by an active intelligence. But Franklin concluded that in theological matters we should be careful of what we wish for: the well-ordered world contains some uglier features, such as the miseries suffered daily by human beings, innocent and guilty alike. If the world is so intelligently designed, why does it contain such misery? For Franklin, answering this question leads to some troublesome conclusions about the designer.

At the age of nineteen, Franklin published an essay called, ominously, "A Dissertation on Liberty and Necessity, Pleasure and Pain." He argued that if we think of the world as created by an omniscient, omnipotent, and wholly benevolent God, it must follow that virtue and vice do not exist. Such a God must approve of all the things we do, since after all they spring from his creation. And since God could not approve of vice, otherwise known as sin, our vices are not really vices at all; the idea of sin is an illusion. From this, one can only conclude that the world as we find it, with all of its "vice" and misery, must be the best world that can be, because the thrice-perfect God would not have botched his creation. And if the divine order is the best that can be, then God does nothing to interfere now or in the hereafter with the events of the world as they unfold, including all the terrible things that "bad" people do to "good" ones.

Despite the essay's sometimes-powerful logic—anyone who believes in intelligent design should have a look—Franklin soon burned most of the copies because he thought their circulation would have an "ill tendency." If the essay didn't get him in trouble with orthodox believers, said Franklin, it was sure to corrupt his friends and others. Ultimately, Franklin concluded that while the believers in intelligent design didn't really understand the implications of what they believed, it wasn't such a bad thing for them to teach this doctrine, properly misunderstood so as to allow for God's intervention in this world and the next, to the young.

In the current fight between the partisans of religion and reason, Franklin would likely say, "A plague (or at least a bad cold) on both your houses." He might argue that intelligent design is nothing but creationism in disguise, not science. But Franklin, who proposed (albeit with his fingers crossed) that prayers be offered before the sessions of the Constitutional Convention, wouldn't gloat too much at the fate of the hapless Pennsylvania school board that was recently voted out of office for establishing an intelligent design curriculum. As regards the issue of religion and public life, Franklin mistrusted enthusiastic rationalists as much as he did enthusiastic believers. He always worried about political

oppression by the clergy and thought that wise policy should keep them as far from politics as possible. But he would not then think it wise to despise and humiliate those who long for the clergy to rule, especially since the despisers are often as bullheaded as those they condemn.

In managing the politics of faith and reason, Franklin, the greatest scientist of his generation, always preferred artful balance. He did not think that the project of science he so loved would be loved by all—especially when that project started stepping hard on the toes of believers. That's why, if he could have lived for a thousand years, he would not have expected to have been freed from the need to manage the tension between science, technology, and modernity on the one side, and religious faith and enthusiasm on the other. Alas, we don't have wise Ben Franklin around today—but we've got what he wrote and thought, and we do well to turn to it for guidance as we ride on the unstoppable train to the New Atlantis.