Metaphor and Innovation: A (Reluctantly) Instrumental Case for the Liberal Arts

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This is a paper about how liberal education can make a strong case for its usefulness—and, secondarily, about why it should not have to make such a case.

It is generally and rightly considered unfair to begin a paper like this with the weakest and ugliest version of the argument to be criticized. But it is equally unfair to wish this version of the argument away or to understate its prevalence, especially when it will ring so familiar to anyone who has studied the liberal arts. A kind of scholarly bias in favor of the most respectable interlocutors can blind us to the contempt, and even anger, that can mark the conversation about liberal education happening all around us. With that in mind, here is a classic of the genre, a comment posted on an online article that raised the topic of art history:

> Your art history major was the culmination of 12 years spent in school prepping for college only to get there and realizing you're not cognitively astute enough to actually make it through any form of program where you were graded on something other than your worthless opinion on how someone did what they did…you realized that your mental abilities amounted to the lowest rung of collegiate cop out degrees and the only prescription for your mental illness was more art classes and less of the CRITICAL THINKING classes a more scientifically polished mind could handle…when you graduate, and I need a cup of delicious fair trade organic bold roasted hipster goodness, I'll know what coffee shop to find you as you will surely be the barista making it for me.
>
> Here's a tip, go back to school and actually do something this time…it's time to swallow your pride and eat some science.…Math and science. This country needs more people who can do it and not read blogs on it in between their painting sessions.[1]

[Sic.]

These are familiar tropes in what we can call the "contempt for the liberal arts" literature. Those of us who study the liberal arts have a unearned sense of cultural superiority. We are intellectually unqualified for more serious and lucrative fields. We will be punished for these sins by the market. Above all, the liberal arts are useless.

In more presentable forms, these arguments play a dominant role in our national discourse on education. We see them in plans, like one recently proposed by the governor

[1] "Swedish Art Gallery Holds First Art Auction Based on Emotions," *Gawker*, July 5, 2014 (anonymous comment on article), http://goo.gl/NlekXM.

of Florida, to charge higher state college tuition for fields like English and history.[2] We see them in unsubstantiated warnings of a "STEM shortage" and its imminent danger to our economy. We see them in the 21st-century version of xenophobic "Yellow Peril" rhetoric, "the idea that China and India are churning out an unstoppable army of engineers who will render the United States incapable of competing"—alongside the implication that studying the liberal arts under such conditions is vaguely disloyal.[3] We even hear them in President Obama's remark that "folks can make a lot more potentially with skilled manufacturing or the trades than they might with an art history degree."[4]

Beneath this discourse, there are deeper currents: age-old dichotomies between the *vita activa* and the *vita contemplativa*,[5] between the "useful arts" (or even "servile arts") and the liberal arts, or the much more recent distinction between STEM (science, technology, engineering, and math) and every other discipline. (An entirely different paper could be written on the process by which mathematics, once supposed to be the purest and most unearthly of disciplines, was conscripted to the service of the useful arts.) In other words, both defenders and critics of the liberal arts are inheritors of an ancient argument—and I have no wish to discredit the critics by associating them with the least palatable version of their case, the version with which I began. I only want to suggest that defenders of the liberal arts do their own case a disservice when they ignore the very real public resentment of their disciplines. The ancient argument is, in large part, one about usefulness and uselessness; and at this cultural moment, the very notion of uselessness is an object of anger.

I would suggest that advocates for the liberal arts confront this anger in two ways. First, there is a very strong case to be made that the dichotomy between useful and liberal is flawed: that the technical progress that so occupies critics of the liberal arts in fact relies to an unexpected degree on the metaphorical and figurative thought that the liberal arts excel in cultivating. But second, and more ambitiously, liberal studies ought to lead us to challenge many accounts of education as an instrumental good.

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[2] Alison Griswold, "Majoring in the Humanities Might Soon Cost You More in Florida," *Forbes*, January 18, 2013, www.forbes.com/sites/alisongriswold/2013/01/18/majoring-in-the-humanities-might-soon-cost-you-more-in-florida.

[3] Freddie deBoer, "STEM: Still No Shortage," *Medium*, November 27, 2013, medium.com/i-m-h-o/stem-still-no-shortage-c6f6eed505c1.

[4] Scott Jaschik, "Apology from Obama," *Inside Higher Ed*, February 19, 2014, www.insidehighered.com/news/2014/02/19/professor-art-history-receives-handwritten-apology-president-obama. President Obama later sent an apology note to one of the art history professors who objected to the statement.

[5] For a short history of this debate, see Brian Vickers, *In Defense of Rhetoric* (Oxford: Clarendon, 1988), 271-76. In the early modern era, for instance, shunning the *vita activa* was described as "barbarous isolation, illiterate, inferior, fruitless, infertile, treasonous, inhuman, rotting in laziness, sterile, unjust, vain" (quoting from sources including Petrarch, Bruni, and Alberti). Of course, we get a sense of the shifting contours of this argument from the fact that those who launched such attacks were themselves humanists and would likely be the victims of similar epithets in our time.

Technical innovation tends to enter the world wrapped in metaphor. As the philosopher Owen Barfield put it, "When a new thing or a new idea comes into the consciousness of the community, it is described, not by a new word, but by the name of the pre-existing object which most closely resembles it."[6] Barfield was describing a problem in historical linguistics: whenever old words are applied to new objects, the task of reconstructing ancient cultures from their vocabularies grows muddied. As an obvious example, he pointed out the absurdity of assuming that the ancient Celts used internal combustion engines just because they would have understood the word "car." In reality, "car" has come to us through a chain of metaphors, from chariots to wagons to wheeled vehicles in general to our current usage. Our vocabulary for technology is suffused with metaphor: we carry miniature computers in our pockets and still call them "phones," we "dial" them, and we "plug" them into sockets and "charge" them (in the way that wagons and cannons were once charged) with something that is *electricus* or amber-like (because amber rubbed with a cloth gives off static).[7]

This is a story, however, of more than etymological interest. I would suggest that there is more to be learned about the ways in which change in metaphor plays a causal role in technical change—in which language does not merely describe but conditions innovation.[8] As a very brief case study, consider the metaphorical history of the hot-air balloon.

In particular, I want to link two important moments in that history, those of conception and of explanation. In 1777, Joseph-Michel Montgolfier was watching clothes drying over a fire when he noticed a shirt swept up in a billow of air. Six years later, applying the same principle of fabric filled by heated air, he and his brother demonstrated their hot-air balloon and accomplished the first manned human flight.[9] In Paris, a grand monument was planned in their honor; though the project stalled in its earliest stages, a five-foot clay model still exists, sculpted by the artist Clodion soon after the first balloon demonstrations. At first glance, it is hard to see that the modeled clay depicts a balloon at all: the body of the object is encrusted with layers of tiny, winged cherubs. They appear to make the machine fly under their own power: they stoke the fire at its base, waft up in gusts of air, and propel it with their wings. Two full-sized angelic figures (perhaps Fama and Aeolus) cling to the top of the fabric shell: one blows a herald's trumpet, and another

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[6] Owen Barfield, *History in English Words*, rev. ed. (Great Barrington, MA: Lindisfarne, 1967), 24.

[7] Brian Baigrie, *Electricity and Magnetism: A Historical Perspective* (Westport, CT: Greenwood Press, 2006), 7-8.

[8] There is a significant literature on metaphor as productive of new knowledge, and, more recently, on the practical applications of metaphor in computing design, a topic I discuss below. See, e.g., Pippin Barr et al., "A Semiotic Model of User Interface Metaphor," in *Virtual, Distributed and Flexible Organisations: Studies in Organisational Semiotics*, ed. Kecheng Liu (Dordrecht, Netherlands: Kluwer, 2004); George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980); Aaron Marcus, "Metaphors and User Interfaces in the 21st Century," *Interactions* 9(2) (2002): 7-10; Christian Nill and Vishal Sikka, "Modeling Software Applications and User Interfaces Using Metaphorical Entities," *CEUR Workshop Proceedings* 159 (October 2005); and Bent Sørensen, "The Concept of Metaphor According to the Philosophers C.S. Pierce and U. Eco—A Tentative Comparison," *Signs* 5 (2011): 156-85.

[9] Charles Coulston Gillispie, *The Montgolfier Brothers and the Invention of Aviation 1783-1784* (Princeton: Princeton UP, 1983), 15.

supplies the lateral motion by puffing up his cheeks and blowing, straining himself as if it would take all of his effort to overcome the weight of the dangling babies and make the contraption move.[10]

To judge by our standard categories, we have in that brief history a moment of science and a moment of art: one productive and valuable, one superfluous or at least parasitical. But consider again those cherubs and the very real problem they are solving: representing human flight to a world in which actual human flight is only months old. Imagine the model blown up to monumental size and stripped of its cherubs in the name of "realism": to an audience that had never seen a balloon, it would most likely resemble a lopsided sphere standing incomprehensibly on a pedestal. When Clodion sculpted his model, a fire-powered, human-carrying sack of fabric was entirely new—but flying cherubs were old. *Putti* had been soaring across the ceilings of Europe's churches and palaces for centuries.[11] As Barfield observed, it is often only in terms of the old that the new makes initial sense. Without the *putti*, the balloon monument would likely have been unintelligible; with the help of their metaphor, a flight powered by angels rather than expanding air, an object as alien as a flying machine was domesticated into a familiar visual culture. Clodion's metaphor played the role of explaining, even justifying, Montgolfier's balloon. More importantly, though, the processes that brought both objects into being would seem to have a great deal in common. They both demanded conceptual leaps from old to new, and from like to like: the insight that turned a balloon into a piece of Rococo art was not so different from the insight that turned a billowing shirt into a balloon. This is what I mean by innovation conditioned by metaphor, not simply described by metaphor after the fact.

(Incidentally, this process can be iterative, as well, as new objects and concepts grow old and are redeployed as metaphors in their turn. In 1906, Paris finally erected a balloon monument to commemorate the flying messengers of the Franco-Prussian War.[12] By then, of course, balloons were familiar enough that no symbol of flight, angelic or otherwise, was required. Balloons, in fact, had become metaphors of their own, as in "speech balloons," or the verb "to balloon," which took on the meaning of swelling up in the 19th century.)

But perhaps more interesting for our purpose are the negative cases: cases that demonstrate the harmful effects of metaphors that are somehow defective. By defective metaphors, I mean those so dulled by familiarity that they constrain our sense of the possible, even as we have lost sight of their artificiality: they function like Blake's "mind-forg'd manacles." And I suggest that these cases might reward our attention the

[10] For an illustration of the model, see Clodion, "Model for a Proposed Monument to Commemorate the Invention of the Balloon," Metropolitan Museum of Art, www.metmuseum.org/collection/the-collection-online/search/199410.

[11] See Charles Dempsey, *Inventing the Renaissance Putto* (Chapel Hill: University of North Carolina Press, 2001).

[12] Sergiusz Michalski, *Public Monuments: Art in Political Bondage 1870-1997* (London: Reaktion Books, 1998), 54.

most just because uncovering and exploring the implications of metaphor is an activity for which scholars and students of the liberal arts are already well prepared.

Consider, in another brief case study, the birth and death of the computer "desktop." For at least a generation, our desktops have been almost exclusively imaginary: we hardly ever use the word to refer to the surface of a desk. In the days of the earliest graphical user interfaces, though, the comparison of a computer to a piece of office furniture was unfamiliar enough that it had to be explicitly spelled out for consumers. "First of all," read one of the earliest Macintosh print advertisements in 1984, "we made the screen layout resemble a desktop, displaying pictures of objects you'll have no trouble recognizing. File folders. Clipboards. Even a trash can."[13] When the image was still fresh, a computer interface *resembled* a desktop; now, it just *is* one. And yet, once interfaces were desktops, it seemed to grow progressively harder to imagine that an interface could be anything else. An image that once explained now constrained, as became clear in the commercial failure of early-generation handheld computers.

As Mike Kuniavsky writes in his survey of computing design, one of the most notable failures of these early mobile operating systems came as a result of taking the desktop metaphor far too literally. The Magic Cap OS debuted on Sony and Motorola tablets in 1994. On startup, the user was confronted with an image of a desk housing a touchtone phone and a rolodex. To access other applications, the user clicked out of the "office," navigated down a "hallway," and poked into a variety of "rooms." The internet browser was a further trek: down the hallway, out of the office building, down the main street to the town square, and into a diner, where the internet was represented by a poster. This largely unworkable system illustrates, Kuniavsky argues, how "the metaphor that seemed so helpful may start creating more problems than it solves."[14]

In comparison, why do so many of us find the current generation of mobile operating systems much more intuitive? As in the case of Montgolfier and Clodion, at least two categories of explanation are available to us. A kind of technological determinism would point to the development of cheap and lightweight touchscreens in the decade after Magic Cap's debut. But an account more sensitive to the effects of language would argue for the priority of a conceptual leap that made the technological leap feasible: abandoning a worn-out metaphor. In this account, users had grown so used to the language of desktops, folders, recycling bins, and so on that they had ceased to readily call to mind objects outside of computers. The metaphor had served its purpose, and rather than being reflexively adhered to, it could be discarded. Where the designers of Magic Cap took the desktop metaphor for granted, the designers of iOS de-naturalized it: that is, recognized it as a human creation that could be manipulated or abandoned.

Now, I have no desire to hold up the iPhone as the pinnacle of civilization—only to suggest that this step of de-naturalization, recognizing metaphor *as* metaphor, is far more demanding than it seems in retrospect. I would argue that there is a history of

[13] Mike Kuniavsky, *Smart Things: Ubiquitous Computing User Experience Design* (Burlington, MA: Morgan Kaufmann, 2010), 27.
[14] Ibid., 40-42.

technological failures, misfires, and dead-ends to be written as a history of metaphor: of the capacity of language to inhibit and constrain as much as it inspires.[15] And this sense of constrained possibilities has an import well beyond the details of our gadgets. For instance, as Kuniavsky observes, the metaphor of "cloud" computing suggests an amorphous vapor that "extends beyond our reach and does not have a defined shape or boundary. Events that happen in the cloud may be outside the control of any one person in it."[16] Does the image of data stored in a cloud temper our expectations of privacy?[17]

In this sense, taking a critical stance toward our technology—whether the stance of the inventor who hopes to improve on it, or of the social critic who questions the assumptions and demands it makes of us—requires a critical stance toward the language habitually used to describe it.[18] And of course, the patron saint of this criticism remains Orwell, with his admonition that "if thought corrupts language, language can also corrupt thought." Perhaps most corrupting of all is a careless attachment to those metaphors Orwell called "dying": not the newly vivid ones (like "desktop" in 1984), nor the truly dead ones that have ceased reminding us of images at all (like the "hands" of a clock), but those that retain a metaphor's power to direct and constrain our thought without being immediately apparent as such.[19] Because yesterday's object in need of explanation can

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[15] While it is not my goal to sketch such a history here, it might include such landmarks as the decades-long persistence of the "horseless carriage" metaphor in car design, long after bodies resembling carriages had ceased to be necessary. ("Incredibly," Rolf Harms and Michael Yamartino write, "engineers kept designing the whip holder into early models before realizing that it wasn't necessary anymore.") It might also include the persistence of seafaring metaphors for spaceflight, which arguably helped draw funding and attention away from more productive unmanned exploration. Last, such a history might one day include a discussion of self-driving cars unnecessarily cast into the shapes 20th-century sedans and minivans, and ultimately displaced by new competitors that choose to jettison such metaphors. See Harms and Yamartino, "The Economics of the Cloud," Microsoft, November 2010, www.microsoft.com/en-us/news/presskits/cloud/docs/the-economics-of-the-cloud.pdf.

[16] Kuniavsky, *Smart Things*, 30.

[17] Similarly, the image of a desktop is, in its way, a message about the kind of people who "ought" to use computers: our computers presume, at the very level of their language, that their users are the kind of people who spend their time at office desks.

[18] The same could surely be said for metaphors in politics as well as in technology. For instance, one experiment showed that changing a single word in a news report on crime—describing crime as either a "virus" or a "beast"—led to a significant change in the anti-crime policies subjects proposed in response. "Participants who read that crime was a virus were more likely to propose treating the crime problem by investigating the root causes of the issue and instituting social reforms than participants who read that crime was a beast. Participants who read that crime was a beast were more likely to propose fighting back against the crime problem by hiring police officers and building jails—to catch and cage the criminals—than participants who read that crime was a virus." Paul H. Thibodeau and Lera Boroditsky, "Metaphors We Think With: The Role of Metaphor in Reasoning," *PLOS ONE*, February 23, 2011, 10.1371/journal.pone.0016782. For a broader discussion of the power of "framing" effects in political discourse, and the normative questions raised by this power, see Dennis Chong and James N. Druckman, "Framing Theory," *Annual Review of Political Science* 10 (2007): 103-26.

[19] George Orwell, "Politics and the English Language," in *A Collection of Essays* (New York: Harvest, 1981), 156-71. An important predecessor in this line of thought is Jeremy Bentham: see Bentham, *Handbook of Political Fallacies* (New York: Crowell, 1971). Of particular interest is Bentham's discussion of the abuse of metonymy as a "eulogistic covering," in which the interests of concrete political actors are subsumed under more palatable abstract nouns (e.g., The Crown, The Law, The Court, Property). As Bentham writes,

become today's metaphor, and because today's metaphor can live out a finite life-cycle, the critical task is a continuous one.

In sum, there is a ready response to those critics of the liberal arts who would make technical innovation the barometer of our wellbeing: that the values prioritized in the "contempt for the liberal arts" literature cannot so easily be separated from linguistic creativity, especially a cultivated sense for the possibilities and limits of metaphor. And that sense has long been at the heart of liberal education. The sheer persuasive force of imagery is a theme rung early and often in the humanistic canon. Aristotle stresses that concepts expressed in terms of metaphor are most likely to be retained: "His acquisition of the new idea impresses him all the more. His mind seems to say, 'Yes, to be sure; I never thought of that.'"[20] Cicero, too, agrees that an effective metaphor "has direct appeal to the senses," and that "the most complete pictures are formed in our minds of the things that have been conveyed to them and imprinted on them by the senses."[21] But a student of the liberal arts encounters more than just praise of metaphor's potency over our minds. Near the beginning of his or her education is likely to be one of the most sustained and closely-investigated metaphors in the canon, the metaphor of the city as a human soul, and among the other milestones marking that education are likely to be such other master-images as the City of God, the Leviathan, and the Invisible Hand, each with their own polemical power and limitations. Perhaps that education will also include the study of key symbolism in music, religious symbolism in visual art, or the allegorical tradition in literature. Even among those philosophers whose preference for scientistic prose leads them to be highly critical of figurative language—such as Hobbes or Locke, who wrote that "all the artificial and figurative applications of words eloquence hath invented, are for nothing else but to insinuate wrong ideas"—the student will find the conviction that metaphor demands critical attention.

Among many other things, then, liberal education is training against passivity in the face of metaphor. And there is good reason to expect that schools and colleges that excise this training from their curricula will produce graduates prone to be unaware of, and trapped in, the dominant metaphors of the day. There are real costs to separating technical and figurative skills. There should be a place for both in a common liberal system, one intended to liberate us from habitual ways of seeing.

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"the object and effect is, that…in the stead of the more or less obnoxious individual or individuals, the object present is a creature of the fancy, by the idea of which, as in poetry, the imagination is tickled—a phantom which, by means of the power with which the individual or class is clothed is constituted an object of respect and veneration." Interestingly enough, in the same work Bentham discusses the dyslogistic use of "innovation," a term that has since taken on a highly eulogistic connotation, which is the sense in which I use it here.

[20] Aristotle, *Rhetoric*, trans. W. Rhys Roberts (New York: Dover, 2004), 1412a17ff. In fact, Aristotle's intuition—that audiences are more likely to retain abstract concepts when they are couched in concrete images—has found support in recent research on the effects of metaphorical language. For a survey of this research, see Britt Peterson, "The Power of Mental Pictures," *Chronicle of Higher Education Review*, September 1, 2014.

[21] Cicero, *De Oratore*, trans. E.W. Sutton (Cambridge: Harvard UP, 1967), 3.41.163; 2.87.357.

Of course, liberal education is characterized by metaphors of its own, ones we are free to challenge or endorse, but not to ignore. The metaphor we use to describe what we do might presume (or at least might once have presumed, in an earlier stage of vividness) that liberal education liberates. But in an even older formulation, which I believe retains its value, liberal education is the course of study proper to those who are *already* liberated: liberal arts are the arts of a free man or woman.[22]

Free in comparison to what? In the tradition from which the idea of the liberal arts derived this earlier meaning, freedom was something of an exclusive status. In this tradition, writes Philip Pettit, "liberty is always cast as the opposition between *liber* and *servus*, citizen and slave." Study of the liberal arts was considered appropriate to the *liber* not only because such a person was free from certain kinds of "servile" work. More importantly, the freedom inherent in the liberal arts—their eclecticism, their resistance to narrow specialization, their stance at a remove from the pressures of economic or practical usefulness—was held to be an expression of the *liber*'s freedom. When we call our arts liberal, we are echoing the presumption of those who believed that these arts are just what one would choose to study if one were free. And the defining feature of this freedom, according to Pettit, is that the *liber* "is not subject to the arbitrary power of another."[23]

We ourselves are free to reject this entire line of thought—as we should, I would quickly add, if it were still tied to such an exclusive notion of who might qualify as free. But it need not be tied to such a notion. As Pettit notes, the originators of this line of thought "only ever imagined that it was an ideal for an élite of propertied, mainstream males; they were all men, after all, and men of their times. But there is every reason why we should reappropriate their ideal and reintroduce it as a universal ideal for the members of a contemporary society."[24] Contemporary democracy is not simply an experiment in self-government, but an experiment—though surely challenged and incomplete—in status. Democratic culture is our ongoing attempt to universalize the status of *liber*. We see the attempt in democratic manners, in which anyone can in principle lay claim to the formerly exclusive titles of "sir" and "ma'am," and in which we do not order one another, but ask: "[If it] please [you]."[25] More broadly, we testify to this experiment in status when, as Tocqueville wrote, we treat "every addition to science, every fresh truth, and every new idea [as] a germ of power placed within the reach of the people." He went on:

> Poetry, eloquence, and memory, the graces of the mind, the fire of imagination, depth of thought, and all the gifts which Heaven scatters at a venture turned to the advantage of democracy; and even when they were in the possession of its adversaries, they still served its cause by throwing

[22] See e.g., Seneca, Epistle 88: "You see why 'liberal studies' are so called; it is because they are studies worthy of a free-born gentleman." Seneca, *Moral Epistles*, vol. 2., trans. Richard M. Gummere (Cambridge: Harvard UP, 1917-25).
[23] Philip Pettit, *Republicanism: A Theory of Freedom and Government* (Oxford: Oxford UP, 1997), 31.
[24] Ibid., 6.
[25] David Graeber, *Debt: The First 5,000 Years* (New York: Melville House, 2011), 122.

> into bold relief the natural greatness of man. Its conquests spread, therefore, with those of civilization and knowledge; and literature became an arsenal open to all, where the poor and the weak daily resorted for arms.[26]

These "graces of the mind" are not only valuable up to the point at which they free us; they are also the way in which we enjoy and express our freedom. If they have a *telos*, perhaps it is to finish the instrumental work and arrive at the expressive work.[27]

It is for just this reason that any instrumental case for the liberal arts—including the one I have offered in this paper—should be made with reluctance. Among the varieties of arbitrary power that compromise our freedom, an especially common form in our times is being made to spontaneously justify one's usefulness under threat of nebulous penalties. That is especially the case when the standards of utility are themselves arbitrary and constantly shifting.[28] But this is the demand—prove your utility or face the amorphous consequences—that is so often placed on the liberal arts and those who would study them. It is entirely fair to ask, then: does an account founded on the liberal arts' utility, such as this paper's, only legitimize this demand?

Perhaps it does. But we cannot wish away the dominant strain of thought that we have to persuade: one that values education largely in terms of its instrumental returns. I have granted premises here that, in a more perfect world, I would not grant. I have proposed an answer to our critics in their own terms: that the ends they valorize when criticizing the liberal arts are actually best attained through the liberal arts. Those critics would surely add that any view of education as a non-instrumental good is merely the view of privilege. It is: but our very practice of liberal education in a democratic culture commits us to expand the circle of that privilege as widely as possible, rather than acceding to its current dimensions.

There is such a thing as an argument made *under protest*. To value liberal education is often to live under protest. And advocates of this education have long understood that they can do so honestly as long as they are clear about premises: as long as they know and speak the difference between arguments that are, and are not, of the moment. As John Henry Newman put it:

> Just as in morals, honesty is the best policy, as being profitable in a secular aspect, though such profit is not the measure of its worth, so too as regards

[26] Alexis de Tocqueville, *Democracy in America*, trans. Henry Revere (Oxford: Benediction Classics, 2003), 14-15.

[27] This is not to imply that the liberal arts will inevitably work in such a way in a democracy; Tocqueville's well-known concern with "leveling" offers ways in which they may not.

[28] As deBoer puts it, "Trying to predict what particular set of discrete and limited skills will be useful in the future is a mug's game. It's a fundamentally risky way for an individual to behave, and for policy decisions that are supposed to be based on the most good for the most people, it's incoherent strategy….Individuals can navigate the markets, if they're smart, privileged, and lucky. But great masses of people never can." DeBoer, "Chasing Skills Is a Bad Bet and Bad Policy," July 9, 2014, fredrikdeboer.com/2014/07/09/chasing-skills-is-a-bad-bet-and-bad-policy.

> what may be called the virtues of the Intellect, their very possession indeed is a substantial good, and is enough, yet still that substance has a shadow, inseparable from it, viz., its social and political usefulness.[29]

This is a good metaphor on which to end. Some things are substance, and some shadow.

[29] John Henry Newman, *The Idea of a University Defined and Illustrated* (London: Longmans, 1905), 180.

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