

5-22-2012

## Getting It All Together: the Fragmentation of the Disciplines and the Unity of Knowledge

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### Recommended Citation

Robinson, Timothy A. (2008) "Getting It All Together: the Fragmentation of the Disciplines and the Unity of Knowledge," *Headwaters: The Faculty Journal of the College of Saint Benedict and Saint John's University*: Vol. 25, 102-114. Available at: <http://digitalcommons.csbsju.edu/headwaters/vol25/iss1/10>

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## Getting It All Together: The Fragmentation of the Disciplines and the Unity of Knowledge

It's unfortunate that our college curricula don't do a better job of enabling students to see the interconnections among the various disciplines. It's regrettable that faculty in different disciplines find it so hard to talk to each other about the things that interest them the most. It's too bad we have so much trouble overcoming the "over" in "over-specialization."

These complaints are not new. C. P. Snow's *The Two Cultures* was first published in 1959.<sup>1</sup> Throughout the '60s both students and faculty demanded more interdisciplinary work. For some time educators have touted the value of a capstone course or a capstone experience.<sup>2</sup> The buzzwords that haunt our curricular discussions reveal this persistent concern. Getting "the big picture," learning to view things "holistically," acquiring a facility in "synthesizing" have all been fashionable at one time or another. More recently we have hoisted the flag of "synergy." When I came to CSB in 1981, the core curriculum included something called the "Level III Integrative Course." The program called for these courses to be team-taught by professors from three different disciplines, and the hope was that the students would learn how to pull together ideas and information from different arts or sciences into some sort of coherent package. They would thus learn how to integrate disparate bits of knowledge or different "ways of knowing." Ideally, they would not only make connections among the academic disciplines, they would also see the practical applications, the human relevance, of the disciplines. They would learn how to integrate their academic learning into their lives.

These are noble goals, no less noble for the fact that the actual results often fall disturbingly short of them. But how realistic are they? How easy is it to forge some kind of meaningful unity among different departments of knowledge? This question may not admit of a general answer. It may depend on which parts you're trying to put together and what kind of unity you want to create. Environmental studies emerged

in large part in response to threats to the environment. It is focused, at least initially, on practical problems (i.e., problems we really need to do something about). Since these problems are multi-faceted, their solutions require cooperation among diverse disciplines. It would be hard to question the necessity of interdisciplinary cooperation in a case like this.

In cognitive science, on the other hand, although it has numerous practical consequences, the defining problems are essentially theoretical. What is the neural basis of memory? How good a model of the human brain is a computer of one sort or another? How do we really get from the bombardment of our retina by photons to the perception of a three-dimensional object, and from there to the recognition of a face? The answers must draw on the efforts of psychologists, computer scientists, information theorists, linguists, philosophers, and neurologists. It has long been recognized that these disciplines, or their predecessors, have been seeking answers to the same or closely related questions. And correspondingly it has long been the hope that these disciplines, if better integrated, could prove mutually illuminating. The fact that cognitive science is a late arrival on the scene suggests that these disciplines have only recently reached the point where meaningful integration was possible. Maybe we should spend more time asking ourselves, Are the disciplines we're interested in *ready* to be integrated with each other?

As educators, we sometimes fall into the delusion that we ought to be able to achieve meaningful integration or cooperation between any two disciplines. A recent ad for a philosophy opening at Texas A & M University at Galveston lists among the responsibilities of the position “developing Humanities/Social Sciences courses that support [the] Maritime Studies major.”<sup>3</sup> I wonder what those humanities courses will look like. Maritime history is easy enough, and the English department could provide large doses of Melville and Conrad, but what is a philosophy professor going to do? Even in the cases of history and literature, surely we should question the wisdom of *tailoring* them to the major in Maritime Studies.

The curriculum at Saint John's when I got here included an upper-division humanities course required of all non-humanities majors. This, too, was a course that had to be team-taught, typically with two instructors, but just among the humanities faculty. It turned out not to be as easy as one might expect to find pairs of humanities teachers who could concoct a course with more than an artificial unity. Of course, it didn't help matters that such “clusters of synergy” had to be found among the faculty left over after other necessities — the major courses — had been covered. The then-dean asked me to work something out with a theology professor. Theology and philosophy — a

natural mix, no? But it turns out that this particular professor was deep into pastoral theology, which as far as I can tell, puts a lot more emphasis on pastoring than on theology. Fortunately, we were able to persuade the dean that he was courting disaster.

In all these examples, we are considering what might be called “local” integrative projects, in which we try to interrelate *some* disciplines. What if we are interested in something more global, in the possibilities of unifying *all* the disciplines? How realistic is that ideal? It seems to me that something of this sort hovers around in the background of our discussions of the curriculum. It is far from being the only ideal that animates the discussion, nor do I claim that everyone shares it, but I feel that it is there, exerting some influence on our debates. And surely a liberal arts college ought to accord this idea some respect, for the traditional notion of a liberal education arguably is founded on a faith that, in the final analysis, everything does fit together somehow, and that a primary aim of education should be to enable our students and ourselves to apprehend that unity as far as possible.

One can have various motives, rational or non-rational, religious or secular, for believing in the ultimate unity of things. The question I am pursuing here is not whether that sort of faith is justified. My question is rather of the sort that I mentioned in connection with cognitive science. In that case, the desirability of integrating a number of disciplines was clear, but for a long time such integration was not feasible; the disciplines weren't ready for it. My question is, How ready is the whole range of disciplines for integration? I'm asking this not about the final analysis, but about the prospects for the immediate future. But before we can fairly broach the question, I think we need to get a little clearer about precisely what this ideal of unity is.

## What Kind of Unity Do We Want?

What we seem to be after is a kind of knowledge.<sup>4</sup> What we want that will integrate all the other forms of knowledge is itself a form of knowledge. We might describe it as a vision or a grasp of the relationships among all the departments of knowledge and, by means of that, an understanding of the relationships among all the departments of human life. The physicists hope someday to devise what they call a Grand Unified Theory, which will interrelate all the fundamental natural forces. Our educational ideal is even more ambitious, for it hopes to extend the scope of integration far beyond the phenomena studied by physics. It seeks a *grand* unified theory which would truly deserve to be called a “theory of everything.”

To recognize the goal as a kind of knowledge is to distinguish it from other ways of unifying the divisions of learning and life. Most of us try to achieve some sort of coher-

ence among our various activities, projects, and commitments — what we might call “practical” or “existential” wholeness. A unifying vision of the world might contribute to that, but it’s not the same thing, and fortunately we can generally bring off a tolerable degree of existential cohesion without having a comprehensive theory. However, it’s the theory we’re interested in here.

The traditional name for this kind of knowledge was “metaphysics.”<sup>5</sup> Hence, our question could equally well be stated, What are the current prospects for metaphysics, or better, for constructing a satisfactory or adequate metaphysics? After all, we don’t want just any theory, we want a good one. (The prospects for devising an inadequate metaphysics, I can confidently report, are excellent.)

To focus the question further, let’s consider the conditions a theory would have to meet to count as adequate. This is an ideal we’re talking about, so we can aim fairly high. One of the main things we want from a metaphysics is a remedy for the radical fragmentation of culture in the last century. We want the gaps among the disciplines to be bridged, if they cannot be closed. In particular, we want to see a resolution of the dichotomies between fact and value, between reason and passion, between the indifference of nature and the deep concerns of human beings, dichotomies which to some extent underlie the divisions between Snow’s two cultures. We don’t want a metaphysics that satisfies the head but not the heart, a metaphysics that achieves unity only by relegating to insignificance the things that matter the most to us.

At the same time, we will not be satisfied with a metaphysics that achieves these goals unless it also lives up to our standards of systematic rigor and justifiability by the evidence. We don’t want a mere juxtaposition of bits of meticulous reasoning with occasional flights of fancy. We certainly do not want a marriage between the scientific textbook and the popular self-help book. Our unifying vision must not offend against intellectual responsibility. I emphasize this because I was recently reminded by a news article of how readily people find profound meaning in one or another variety of nonsense. I read in the March 5 issue of *Newsweek* that a book which is projected to have sold 1.75 million copies by the end of last week contains the secret wisdom that you can make good things happen just by thinking about them.<sup>6</sup> If that’s what it takes to give people a sense of hopefulness, I’m afraid we’re in serious trouble.

To get some sense of the challenge we face in trying to get it all together, we might ask, Exactly what kind of unity can we reasonably expect to bring about among such a wide range of disciplines? Or, to make it more pointed, let’s put it this way: What conceptual devices or methodological strategies might we employ in moving toward such unity? In addition, we might want to think about what sorts of practical obstacles currently impede our progress toward that goal. These two issues set my immediate

agenda. I propose to turn to the history of philosophy in search of a helpful unifying device. Having located a promising suggestion, I will then try to dash any hopes I have thereby raised by pointing out, and perhaps exaggerating, a practical difficulty.

## How Not to Unify

To the first question, then: How might we go about assembling a “grander unified theory?” Obviously, I can’t try to survey the whole range of possibilities. Instead I will try to characterize one idea that I think is a bad one and one that is good.

The phrase “unified science” is closely associated with the Logical Positivist movement. Their ideal of human knowledge was a deductive system on the Euclidean model, in which theorems are rigorously proven on the basis of explicit and unambiguous axioms and purely logical rules of derivation. Among the sciences, physics was to take pride of place, and the first principles of the other sciences would occur as theorems of physics. If anything were more fundamental than physics, it would be an epistemological theory which explained how physical principles could be established on the basis of logical truths combined with the data of immediate experience. The final product would more than *interrelate* all the sciences; it would in an important sense *incorporate* them.

It’s an impressive ideal, but it quickly became evident that it was not realistic. Parts of the sciences lend themselves to formalization in such logical systems, and parts don’t. We might invoke Richard Feynman as an authority here. He described Euclidean-style systems as characteristic of Greek mathematics, and contrasted that with Babylonian mathematics, a tool kit of techniques not subjected to strict codification. He insisted that the methods of physics are Babylonian rather than Greek. If he was right, then even the most idolized of the sciences couldn’t live up to the positivist ideal.

The failure of the positivist project was in part a lesson gained by experience — the prosecution of the axiomatic method just wasn’t very successful. But apart from that, there were theoretical challenges to the whole enterprise. In the early stages of the project, the attempts to reduce elementary mathematics to logic, paradoxes were encountered that could apparently be overcome only by an elaborate, cumbersome, and ad hoc apparatus. On the heels of these developments, Kurt Gödel produced his proof of the inevitable incompleteness of any system which attempted to axiomatize arithmetic. There is debate about the precise implications of these theoretical problems, but in combination with the practical difficulty of producing satisfactory systems in most areas, they took much of the wind out of the positivist’s sails.

A separate reason for not wanting to revive that approach, though it is one that had little force for the positivists themselves, is that even in the programmatic stage, one device for achieving this grander unity was to relegate judgments of value to the “emotive” realm, where questions of truth or justification had no relevance. Bertrand Russell famously declared that the question of the meaning of life was itself a meaningless question. By insisting that the domain of truth was limited to the subjects of the empirical sciences in their current state, the positivists persuaded a great many people that their philosophy eliminated the most important components of the universe and was, in the final analysis, anti-human. As a unifying project, positivism can be said to have resorted to the simplest sort of strategy: kick out the bits that don't fit.

So that turned out to be a bad idea. But if we're not going to aim at this kind of system, how will we tie the branches of learning together?

## A Better Idea

Throughout our intellectual history, a common method for interrelating disparate phenomena has been the use of analogy. Analogy can be dangerous. It provides a way of displaying similarities among incredibly diverse subjects, but such similarities are not all on the same footing. Some seem to be tremendously enlightening, some are striking, pleasing, or repellant, some controversial, and some just silly. But if we're prepared to make the necessary discriminations, analogy seems an avenue worth exploring.

To show how this might work, let me just focus on a small piece of the history of philosophy. I will briefly outline a function of analogy in the philosophy of Aristotle, who is interesting in part because analogy does not, on the face of it, play a huge role in his philosophy. I begin by talking about Aristotle's conception of *nature*.

According to Aristotle, every natural object has a power to move, change, or act in a characteristic way. That power *is* the nature of the object. It is the object's “motor,” so to speak, and each object has one of its own. The exercise of that power is what is meant by the “actualization” of the thing's nature. When we say — and I think we used to say this more than we do now — that the aim of education is to help students fulfill their potential, we are drawing on this ancient Aristotelian notion. On Aristotle's view, the ideas of actuality and potentiality find application in all the departments of inquiry. If this is not always obvious, it is because we more often find Aristotle using the language of his famous “Four Causes,” and we may fail to realize that the ideas of actuality and potentiality are central to that doctrine. But despite their centrality, Aristotle does not define these terms. In fact, he discourages any attempt to define them.

He says in book Theta of his *Metaphysics* (1048a36–b7):

We say that [a statue of] Hermes is potentially in the wood [from which it is to be carved] and that the half-line is potentially in the whole line, in view of the fact that in each case what exists potentially can be separated from the whole; and we say that a man is a scientist even if he is not in the process of investigating something, provided that he is capable of doing this; but Hermes and the line when separated, and the scientist in the process of investigation, these exist in actuality. What we mean is clear by induction from individual cases, and we should not seek a definition of everything, but should also perceive an object by means of an analogy; thus, as that which builds is to that which is capable of building, so is that which is awake to that which is asleep, or that which is seeing to that which has its eyes shut but has the power to see, or that which is separated from matter to matter itself, or the finished product to the raw material. Let the term ‘actuality’ signify the first part of each of these differences and ‘the potential’ signify the second part.<sup>7</sup>

The point is that when we examine a term like *actuality* or *potentiality* as used in two different contexts, we find that it does not bear precisely the same sense in both contexts. But at the same time, it would be wrong to say that the two senses are totally unrelated. The meanings are analogous. I hope, as Aristotle did, that his examples are enough to give you a rough grasp of what “analogous” means here.

The notions of actuality and potentiality — and the whole nexus of notions built around these — thus do not have simple, constant meanings across different domains of knowledge. But because these meanings are analogous, and because Aristotle at the same time has techniques for keeping the different domains separate so that the varying meanings need not introduce confusion, these notions provide a unifying thread across those domains.

So here’s my immodest proposal: If we want to integrate all the disciplines, we should follow Aristotle’s example and provide our metaphysics with a healthy stock of concepts which admit of analogous application. I do not say that this is the only way it can be done, but this route looks promising. Such a metaphysics does not attempt to incorporate the other forms of knowledge and is not reductionistic, but respects the diversity and the autonomy of the different disciplines.

There is another merit of Aristotle’s approach. At least, I think it is a merit, and even if you disagree, it’s a feature that helps explain why so many people have found the world as portrayed by post-Aristotelian science to be a cold and unfriendly place, a habitat of despair. This takes a bit more exposition.

One element of Aristotle's scheme is the notion of a Final Cause. As the official story has it, the success of modern science is due in no small measure to its having abjured all explanation based on final causes. Our appreciation of the concept is complicated by the fact that in the 18<sup>th</sup> and 19<sup>th</sup> centuries it became entangled with so-called "teleological" arguments for the existence of God, and when evolutionary biology began replacing teleological explanations for natural phenomena with explanations on Darwinian principles, appeals to teleology became identified with attacks on science itself. To get clear about the crucial differences between Aristotelian and post-Aristotelian science, it's better to focus on physics than on biology, on the causes of motion than on the origins of species.

On Aristotle's view, every motion, process, or activity has an end. In the simplest cases, all this means is that there is a point at which the motion naturally stops. For instance, objects in which the element earth predominates naturally fall, because their natural place is at the center of the cosmos, and when they reach the center, they stop moving. In the actuality–potentiality language, motion simply is the actualizing of the potential, the exercise of the power of movement. Essentially the same idea — or I should say, a closely analogous idea — is operative when Aristotle describes the action of a drama as having a beginning, a middle, and an end. This doesn't just mean that it should start somewhere and end somewhere and be somewhere in between. It means there should be a natural progression, that the end arrived at should represent the culmination of the previous events in the plot. In the case of literature, unlike that of gravity, this is a desideratum rather than a guaranteed result. But when it is lacking, then by Aristotelian standards, the plot is defective. There have certainly been literary movements that rejected the idea that a story ought to have this kind of wholeness, but we've all read enough of the other sort to have an intuitive grasp of the idea.

In the most basic sense, then, the idea of a final cause is the idea that a motion or process can be completed. Even in Aristotle, it gets a lot more complicated than that, but this is enough for present purposes. When you compare this to modern physics — I don't mean relativity theory or quantum mechanics, but just classical Newtonian physics — you can see what a radical change the Scientific Revolution effected even at this simple level. The first law of motion is the law of inertia. An object will continue in its state of motion or rest until it is acted on by some force. Let's not worry about objects at rest. An object in motion will continue to move without change in its velocity, as long as nothing accelerates it. It is in principle capable of moving forever. Think about that. In this scheme, an object in motion doesn't have to be going anywhere. It's moving from place to place, sure, but it doesn't have any destination. Right there at the beginning of classical physics you've got the idea that motion can be pointless. It is not

a logical consequence of this that the universe itself is pointless, but psychologically speaking, it's a nod in that direction. There's a pretty direct path from the law of inertia to LaPlace's declaration that he had no need of the God-hypothesis, which LaPlace may not have meant as an argument for meaninglessness but many others have used for just such a purpose. When people talk about the world as consisting fundamentally of a "blind rush of atoms" and go into existential convulsions over the fact, this is the source of their angst.

I am not saying that Newtonian mechanics is inconsistent with religion or with human values. And I think Hobbes's attempt to model his political theory on materialistic atomism was not particularly successful. My point is simply that people who saw the world through the Aristotelian lens saw natural processes, whether physical or biological, as having a structure analogous to human action. If the natural processes were not purposive in the ways the later teleologists would have it, they at least had something analogous to a purpose. I cannot but think that the destruction of this analogy was part of what prompted antipathy to the Scientific Revolution. The first step was to destroy the analogy, and the second was to attack the notion of purposiveness even as applied to human action. For not a small number of modern thinkers, that second step has been regarded as inevitable for anyone who pretends to rationality.

The way to repair this damage is not to reinstate Aristotelianism. We know too much to persuade ourselves that he got it right. But if we follow Aristotle at least to the extent of seeking for analogous principles across disciplines, we may find that such analogies are capable of restoring our sense of kinship with the cosmos in which we live, our sense that this is not just our location, but our home.

A final reason for endorsing this proposal is that something along these lines has been created, and it arguably does achieve much that I have seen as promising in the idea of analogy. Unfortunately, it hasn't caught on. Reflecting on why it hasn't caught on will take me to my second topic, the practical difficulties of doing metaphysics at present. But before I turn to that, I'd like to point out one corollary of my proposal.

The gist of the proposal, again, is this: If you want to unify the disciplines, look for analogies; see if you can find some wide-ranging ideas that analogously tie it all together. If that suggestion seems worthwhile, there are consequences for how we conceive of the aims of education. Currently we do not seem to regard it as an essential purpose of education to develop students' abilities to recognize and appreciate analogies, much less to teach them how to seek out analogies. In discussions of science, the notion of analogy has been desiccated into the concept of a theoretic model. The rich sense of analogy is preserved only in literary and artistic studies, and even there it seems to suffer reduced status. In the fine arts more particularly, our *performances* seem to become

ever more powerful, while our *thinking* about them becomes ever more undisciplined. It is common for practitioners of the fine arts to scornfully dismiss any theorizing about them. And I have read and heard professional discussions of aesthetics that struck me as a kind of speaking in tongues. At any rate, I believe we would take a different view about what sorts of experiences are likely to produce an educated person if we regarded a mastery of analogy as essential to that ideal. In particular, I would point out the close affinity (if it is not more than that) between analogy and metaphor. It might well be that the most effective way to help students to integrate their learning is to immerse them in poetry. I can't think that this would be a popular move, among students or among faculty. But then, the best course of action is not always popular.

## Grounds for Pessimism

Now to my second topic. I am less than sanguine about our prospects for attaining a metaphysical theory that could unify all the departments of knowledge. This pessimism derives from consideration of another, much more recent episode in the history of philosophy.

In the first half of the twentieth century, Alfred North Whitehead devised a metaphysical theory of incredible scope.<sup>8</sup> Whitehead had the advantage of being an excellent mathematician, capable of grasping the extraordinary developments of relativity physics and quantum mechanics taking place in that period. His theory was meant to accommodate those developments, as well as to take into account the epistemological insights of modern philosophy and to benefit from the elaboration, in which he had a hand, of modern mathematical logic. Beyond this, he regarded literature, and in particular the productions of the Romantic poets, as disclosing dimensions of experience which, no less than scientific discoveries, had to be addressed by metaphysical theory. Few have had his qualifications for ranging over multiple disciplines, few have had his sympathy for multiple “ways of knowing.” Particularly interesting to me is the fact that his metaphysical principles had precisely the kind of analogic character that I have recommended.

One particularly striking illustration of that is his book *Adventures of Ideas*.<sup>9</sup> This is an explication of the development of the idea of freedom in Western thought and practice over the last two millennia. It is intended as a case study of a particular way of doing the history of ideas. If that were the only book of his you read, you wouldn't realize it, but what he is up to in that volume is showing how the history of ideas lends itself to the same kind of analysis as the behavior of elementary particles. To put it less provocatively — or is this *more* provocative? — he is demonstrating how processes

that characterize the grand sweep of intellectual history are analogous to those found at the most fundamental levels of physics. Whitehead's metaphysics, unlike Aristotle's, has not trickled down into the common understanding, and consequently we lack the Whiteheadian equivalents of such Aristotelian survivals as "nature" and "potentiality" to take as bases for discussing the theory. Whitehead's system is sufficiently foreign to commonplace thought that I will not attempt more detailed exposition. I will just say that this is the theory referred to in the announcement of this talk as a recurrence of Platonism in the 20<sup>th</sup> century. If you can imagine someone reviving the Platonic Forms, complete with all their accoutrements in the doctrines of participation and recollection, and putting them into the service of integrating arts and sciences of which Plato never dreamed, or perhaps only dreamed, then you will have a rough idea of what Whitehead's metaphysics looks like. If you cannot imagine such a thing, that is hardly surprising, since Plato's own ideas are typically discussed in modern academic culture only as an object lesson in hare-brained philosophizing, useful only as a whipping-post.

So, Whitehead can arguably be said to have produced, for the mid-twentieth century, a metaphysical theory that satisfies the criteria I talked about earlier. And as far as I can see, subsequent developments have not altered our understanding of the universe so radically that Whitehead's metaphysics could not be updated without profound alteration. But this is also the theory I mentioned earlier as one that hasn't caught on.

There are a handful of devotees who worship at Whitehead's shrine, but by and large his impact on contemporary thought has been minimal, except perhaps in theology departments. This would be understandable if Whitehead's metaphysics had been rejected in favor of something better. But in fact, Whitehead had a virtual monopoly on the kind of metaphysics we are talking about here. What went wrong? If this is really what we want, why have we ignored the thinker who tried hardest to give it to us? A successful metaphysical theory ought to have broad appeal, at least among the professors. Why does Whitehead's theory fall short on that score?

The answer, I think, hinges on one more condition for a satisfactory theory that I haven't discussed yet. The acceptability of a theory depends in part on whether it is, in the language of the philosophers of science, "fruitful." It is not enough that a theory present an encyclopedic summary of existing knowledge; to be fruitful, it must open up new lines of investigation. There is little motivation on the part of a researcher to adopt a new theory, or a significant innovation in an old theory, unless the researcher can take the novel element and do something with it. The theory must raise new questions to which the researcher can seek the answers, and the researcher must be

convinced that seeking those answers will pay off — that answers can be found, or progress can be made toward the answers, preferably with new problems and new solutions emerging along the way. In short, the theory must be exciting, and what makes a theory exciting is a sense that using that theory as a lens for examining one's subject matter will lead to exciting achievements. Of course, one's judgment in these matters, as in others, is fallible. The theory that excites someone might turn out to be a dead end. But you only go down a new road if you think it's leading somewhere you want to go. When it's a metaphysical theory that is in question, this desideratum takes on a special interpretation. For a metaphysical theory to be appealing, it is not enough that it open up new avenues of metaphysical investigation. It must also perform this office for the disciplines subordinate to it. There is little interest, at least in the present state of the academy, in anything that will integrate my discipline with others unless I anticipate getting something out of it that will benefit my discipline. A metaphysical theory that promised to advance physics or literary theory would attract the interest of physicists or professors of literature. Absent such ramifications, who wants it?

Now I appear to have contradicted myself. I began by saying that a common ideal is that of somehow unifying the whole range of disciplines. Now I seem to be saying that nobody wants that unless they can get their next publication in their discipline out of it. But I submit that this is not so much a contradiction as a case of conflicting goals. When we think about the aims of education, general education, liberal education, we aspire to integration. But when we think about our personal careers, we become wary of the previous goal; we want to know how much it will cost, in terms of time and energy taken away from the disciplines we first fell in love with, and how much the expenditure is really likely to be worth.

But this isn't the whole story. It's not as if we were all selfishly sacrificing the common good to narrow interests. You could also describe the situation this way: the fact that a powerful and innovative metaphysics fails to inspire new departures in the specialized disciplines may just be a sign that many of those disciplines are not ripe for integration. This is not to accuse them of an insulting sort of immaturity. By most measures, many of our disciplines, and not just the scientific ones, have advanced far beyond the wildest dreams of a century ago. But the increase in sophistication certainly seems to have made the task of integration more difficult. I'm inclined to think that the moral of the story is that we mustn't push for too much integration too fast. Perhaps we should continue to give the disciplines leeway for autonomous development, keeping in mind the grander idea of unity, but meanwhile encouraging what I have called local projects of integration only where they seem genuinely promising.

This is just to say that we should balance our desire for unity against the benefits of disunity, which is certainly true, but unfortunately I don't know of any rule for determining where that balance lies.

The upshot of my reflections is that we ought not be optimistic about near-term possibilities for any sort of grand synthesis. But this business of making predictions is perilous, and if unanticipated developments should soon put the lie to my predictions, I must say this is one case in which I would gladly be refuted.

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## Notes

1. By Cambridge University Press; the second edition, with the title *The Two Cultures and a Second Look*, was issued in 1963.
2. An unfortunate metaphor, since the capstones are just the ones in the top row of the wall, and don't play any special role in keeping the others stuck together, unless my understanding of bricklaying is faulty. Cornerstones and keystones are both more important, and I would favor calling the culminating experience the keystone course, were it not for the comic associations of that term.
3. Published in *Jobs for Philosophers*, 173 (Feb. 21, 2007), p. 7.
4. I do not use that term in its most honorific philosophical sense, in which the very possibility of anything deserving the title is fiercely contested. I use it for the product which results from learning, on the assumption that learning does sometimes actually occur.
5. This has of course not been the only meaning of the term.
6. Jerry Adler, "Decoding 'The Secret'," *Newsweek* v. CXLIX no. 10 (March 5, 2007), pp. 53–58.
7. I use the translation of Hippocrates G. Apostle (Grinnell, Iowa: Peripatetic Press, 1979). The bracketed insertions are my own.
8. The canonical exposition of the theory is his *Process and Reality* (New York: Free Press, 1929; corrected edition, 1978), but no one should attempt to read this without first having absorbed his *Science and the Modern World* (New York: Macmillan, 1925).
9. New York: Free Press, 1933.

## Editor's Note

An earlier version of this article was presented as a Collegial Conversation on March 6, 2007.