

# Beauty for Truth's Sake

The Re-enchantment  
of Education

Stratford Caldecott



**BrazosPress**

*a division of Baker Publishing Group*  
Grand Rapids, Michigan

© 2009 by Stratford Caldecott

Published by Brazos Press  
a division of Baker Publishing Group  
P.O. Box 6287, Grand Rapids, MI 49516-6287  
www.brazospress.com

Printed in the United States of America

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means—for example, electronic, photocopy, recording—without the prior written permission of the publisher. The only exception is brief quotations in printed reviews.

Library of Congress Cataloging-in-Publication Data

Caldecott, Stratford.

Beauty for truth's sake : on the re-enchantment of education / Stratford Caldecott.

p. cm.

Based in part on a series of discussions and seminars held at Arkwood, N.H.

Includes bibliographical references and index.

ISBN 978-1-58743-262-0 (pbk.)

1. Education—Philosophy—Congresses. 2. Education, Humanistic—Congresses. I. Title.

LB14.7.C34 2009

370.1—dc22

2009009353

Scripture is taken from the Revised Standard Version of the Bible, copyright 1952 [2nd edition, 1971] by the Division of Christian Education of the National Council of the Churches of Christ in the United States of America. Used by permission. All rights reserved.

Moon photograph (p. 115) used with permission of Jim Malda, Muskegon, Michigan.

In keeping with biblical principles of creation stewardship, Baker Publishing Group advocates the responsible use of our natural resources. As a member of the Green Press Initiative, our company uses recycled paper when possible. The text paper of this book is comprised of 30% post-consumer waste.



Stratford Caldecott,  
*Beauty for Truth's Sake: The Re-enchantment of Education*,  
Brazos Press, a division of Baker Publishing Group, © 2009. Used by permission.

# Contents

Acknowledgments 9

Introduction: “To Sing with the Universe” 11

## 1. The Tradition of the Four Ways 19

The Great Tradition

Adapting the Medieval Model

Beauty for Truth’s Sake

Beauty on the Cross

## 2. Educating the Poetic Imagination 37

“A Beauty Which Defies Time”

Rediscovering Poetic Knowledge

The Symbolic Cosmos

A Key to the Ancient Mysteries

## 3. The Lost Wisdom of the World 53

Sacred Number

Beyond Pythagoras

Irrational Beauty

*Phi* and the Natural Numbers

Symmetry

4. **The Golden Circle** 73
- A Journey into God
  - Theology of the Trinity
  - In Search of the Logos
  - Geometry as Prophecy
  - The Golden Circle
5. **“Quiring to the Young-Eyed Cherubims”** 89
- Good Vibrations
  - Humane Architecture
  - At Home in the Cosmos
  - Secrets of the Sky
  - The End of the Road
6. **The Liturgical Consummation of Cosmology** 121
- The Construction of Modernity
  - A Sense of the Sacred
  - Liturgy as Remembering to Give
  - An Education in Beauty
  - The Holy City
- Conclusion: Beyond Faith and Reason 135
- Bibliography 145
- Index 153

# Introduction

## “To Sing with the Universe”

In the modern world, thanks to the rise of modern science and the decline of religious cosmology, the arts and sciences have been separated and divorced. Faith and reason often appear to be opposed, and we have lost any clear sense of who we are and where we are going.

Most of us are prepared to let developments in science and technology dictate the shape of the future. We see our job as being merely to hang on tight, to survive, and maybe take whatever advantages are offered us along the way. But in the process, despite all the excitement of modern life, we begin to notice not only that we are damaging the earth and destroying our fellow creatures, but that we are becoming less than human ourselves. We are reduced to being consumers and producers, producing merely in order to consume. We have more and more *stuff*, but the world seems thinner and less substantial, and our own souls also. We have gained much, but we have lost our way in the shadows.

Education is our path to true humanity and wisdom. By this I do not mean simply what goes on in school and university—which all too often turns out to be a path in another direction entirely away

from both humanity and reason. I mean the broader process that engages us all through life. To be alive is to be a learner. Much of the learning we do takes place at home, in the family, or after we leave both home and college and begin the struggle to survive in the wider world. Increasingly, in a society shaped by technology that is continually changing, we need to learn a new skill: *how to keep learning*. We must be flexible and adaptable enough to survive in any circumstances. Even more important than flexibility is a virtuous character and set of guiding principles that will enable us to keep track of goodness amid the moral and social chaos that surrounds us.

I believe it is possible to remain an active learner throughout life, and yet to maintain a moral compass in good working order. But vital though they are, adaptability and ethics are not enough by themselves. There is a structural flaw in our education that we need to overcome. It is related to a profound malaise in our civilization, which by progressive stages has slipped into a way of thinking and living that is dualistic in character. The divisions between arts and sciences, between faith and reason, between nature and grace, have a common root. In particular, our struggle to reconcile religious faith with modern science is symptomatic of a failure to understand the full scope of human reason and its true grandeur.

The classical “Liberal Arts” tradition of the West once offered a form of humane education that sought the integration of faith and reason, and that combined the arts and the sciences, before these things became separated, fragmented, and trivialized. We need to retrace our steps, to find the “wisdom we have lost in knowledge,” the “knowledge we have lost in information” (T. S. Eliot). The wisdom I am referring to can be traced back *via* Boethius and Augustine to Plato and Socrates; but before Socrates there was Pythagoras, and the Pythagorean contribution is just as important in helping us understand what was lost. This book is an attempt to discover and enter creatively into that Pythagorean spirit which lies at the root of Western civilization.

For every great change, every rebirth or *renaissance* in human culture, has been triggered by the retrieval of something valuable out of the past, making new, creative developments possible. The Italian Renaissance, for example, was triggered by the fifteenth-century re-

discovery of the Classical Greek civilization. Similarly today, we may legitimately hope that *ressourcement*, a “return to sources,” and in particular to the pattern of humane learning as it was traditionally understood in the West, though expressed in new ways, will lead to a *renaissance*, the birth of a culture more appreciative of life and wisdom.

It is significant that when the Cardinals of the Catholic Church elected a pope in 2005, they chose a *ressourcement* thinker—one whose concern was to retrieve, proclaim, and defend elements of the Catholic tradition that had been neglected in recent years. But one of the elements that Benedict XVI was most concerned to retrieve was something of much wider than Catholic interest. Speaking for example at Regensburg in September 2006, following the lead of his predecessor John Paul II in the encyclical *Fides et Ratio* (“Faith and Reason”), Pope Benedict XVI has attacked in the name of the whole Christian tradition the modern misconception that faith is the enemy of reason. Faith, he says, cannot be opposed to reason if it is placed in the second Person of the Trinity, who is the Word, the *Logos*, in whom “the archetypes of the world’s order are contained.”

The phrase I have just quoted comes not from the speech at Regensburg but from a passage in his book *The Spirit of the Liturgy*. The Pope’s vision is one in which human existence is fundamentally “liturgical.” That is to say, our lives can be oriented toward God by prayer and action in such a way that the interior world of the human soul and the exterior world of the society and universe are brought into harmony. Thus liturgy—which we often consider a purely human business, something of relevance only to religious believers—is closely related to the mathematical ordering of time, space, and matter. I will quote the whole passage because it is so important. Pope Benedict writes:

Among the Fathers, it was especially St. Augustine who tried to connect this characteristic view of the Christian liturgy with the worldview of Greco-Roman antiquity. In his early work “On Music” he is still completely dependent on the Pythagorean theory of music. According to Pythagoras, the cosmos was constructed mathematically, a great edifice of numbers. Modern physics, beginning with Kepler, Galileo

and Newton, has gone back to this vision and, through the mathematical interpretation of the universe, has made possible the technological use of its powers.

For the Pythagoreans, this mathematical order of the universe (“cosmos” means “order”!) was identical with the essence of beauty itself. Beauty comes from meaningful inner order. And for them this beauty was not only optical but also musical. Goethe alludes to this idea when he speaks of the singing contest of the fraternity of the spheres: the mathematical order of the planets and their revolutions contains a secret timbre, which is the primal form of music. The courses of the revolving planets are like melodies, the numerical order is the rhythm, and the concurrence of the individual courses is the harmony.

The music made by man must, according to this view, be taken from the inner music and order of the universe, be inserted into the “fraternal song” of the “fraternity of the spheres.” The beauty of music depends on its conformity to the rhythmic and harmonic laws of the universe. The more that human music adapts itself to the musical laws of the universe, the more beautiful it will be.

St. Augustine first took up this theory and then deepened it. In the course of history, transplanting it into the worldview of faith was bound to bring with it a twofold personalization. Even the Pythagoreans did not interpret the mathematics of the universe in an entirely abstract way. In the view of the ancients, intelligent actions presupposed an intelligence that caused them. The intelligent, mathematical movements of the heavenly bodies were not explained, therefore, in a purely mechanical way; they could only be understood on the assumption that the heavenly bodies were animated, were themselves “intelligent.”

For Christians, there was a spontaneous turn at this point from the stellar deities to the choirs of angels that surround God and illumine the universe. Perceiving the “music of the cosmos” thus becomes listening to the song of angels, and the reference to Isaiah chapter 6 [“Holy, holy, holy is the LORD of hosts; the whole earth is full of his glory,” Isaiah 6:3] naturally suggests itself.

But a further step was taken with the help of the Trinitarian faith, faith in the Father, the Logos [the Son], and the Pneuma [Holy Spirit]. The mathematics of the universe does not exist by itself, nor, as people now came to see, can it be explained by stellar deities. It has a deeper foundation: the mind of the Creator. It comes from the Logos, in whom, so to speak, the archetypes of the world’s order are contained. The Logos, through the Spirit, fashions the material world according

to these archetypes. In virtue of his work in creation, the Logos is, therefore, called the “art of God” (ars = *techne!*). The Logos himself is the great artist, in whom all works of art—the beauty of the universe—have their origin.

To sing with the universe means, then, to follow the track of the Logos and to come close to him. All true human art is an assimilation to *the* artist, to Christ, to the mind of the Creator. The idea of the music of the cosmos, of singing with angels, leads back again to the relation of art to logos, but now it is broadened and deepened in the context of the cosmos. Yes, it is the cosmic context that gives art in the liturgy both its measure and its scope. A merely subjective “creativity” is no match for the vast compass of the cosmos and for the message of beauty. When a man conforms to the measure of the universe, his freedom is not diminished but expanded to a new horizon.<sup>1</sup>

The big themes in this passage are liturgy, mathematics, art, music, science, and worship. How are they all related? Through the “Logos,” the Pope says. The Logos—meaning “Word,” “Speech,” “Principle,” “Thought,” and “Design,” and identified by the fourth Gospel with Jesus of Nazareth—is the Mediator between heaven and earth, between the invisible One and the visible Many.

Western civilization has long since lost its sense that cosmic order has to be rooted in a “Logos.” It is no coincidence that it lost its faith in God at the same time. If God is not connected with the universe by some kind of mediation, then he floats off into abstract space and faith starts to seem meaningless. Scientists, especially, have no use for such a God, and rightly so. Angelo Scola, the Patriarch of Venice who is another leading *ressourcement* theologian, has formulated the problem as follows:

The question of meaning which Comte forbade us to ask re-surfaces inexorably, like those little clumps of grass that push through in the spring, even in the most desolate wastes. There is no point in avoiding the question of the primordial relationship between God and the

1. Ratzinger 2000, 152–54. Some paragraph breaks have been introduced for ease of reading. See also Chapp 2006, for a profound reading of this direction of the Pope’s thought.

human person, but we do need to formulate it in realistic terms. This involves the re-thinking of the mutual interrelationship between the world and the human person, *so as to recover the lost wisdom of the world*. Cosmocentrism and anthropocentrism can no longer go their separate ways, still less can they be posed as alternatives, if we want to do justice in our thinking to the original relationship between God and the human person.<sup>2</sup>

As we search for this “lost wisdom of the world,” we will keep coming back to a rather significant fact. As our own eyes reveal every day, the universe is *beautiful*. It has majesty, order, and loveliness;<sup>3</sup> these three types of beauty are precisely what scientists themselves love to discover in the world. In fact the greatest of them have usually been motivated less by curiosity than by love. Plato would not have hesitated to call the longing for truth that drives them onward to their discoveries a form of erotic desire.<sup>4</sup>

And so, the chapters that follow are not just about education, although if taken seriously they would change the way we teach. They are also about the search for beauty in art, science, and the cosmos—in short, the search for the Logos. This search is partly a matter of retrieval, but again, not exclusively so. We must have a proper sensitivity to the positive insights and fruits of the Enlightenment, lest we reject the good along with the bad. Ancient writers too were often misled, and their ideas justly criticized and set aside. Let us apply the words of St. Basil the Great, writing about the Christian use of pagan literature in the fourth century, to the way we draw both from medieval and from modern writers whatever we may need to nourish our souls on wisdom today:

It is, therefore, in accordance with the whole similitude of the bees, that we should participate in the pagan literature. For these neither approach all flowers equally, nor in truth do they attempt to carry off

2. Scola 2007 (my emphasis).

3. Corresponding to Father, Son, and Holy Spirit. I owe this suggestive distinction to Tom McCormick.

4. Science is a desire-driven quest—the question is, a desire for what? At its best, it is a desire for reality, attracted by the beauty of truth; at worst, simply for power over nature.

entire those upon which they alight, but taking only so much of them as is suitable for their work, they suffer the rest to go untouched. We ourselves too, if we are wise, having appropriated from this literature what is suitable to us and akin to the truth, will pass over the remainder. And just as in plucking the blooms from a rose-bed we avoid the thorns, so also in garnering from such writings whatever is useful, let us guard ourselves against what is harmful.<sup>5</sup>

The following points may serve to sum up the thrust of the book.

- The way we educate is the way we pass on or transform our culture. It carries within it a message about our values, priorities, and the way we structure the world. The fragmentation of education into disciplines teaches us that the world is made of bits we can use and consume as we choose. This fragmentation is a denial of ultimate meaning. Contemporary education therefore tends to the *elimination of meaning*—except in the sense of a meaning that we impose by force upon the world.
- The keys to meaning are (and always have been) form, *gestalt*, beauty, interiority, relationship, radiance, and purpose. An education for meaning would therefore begin with an education in the perception of form. The “re-enchantment” of education would open our eyes to the meaning and beauty of the cosmos.
- Education begins in the family and ends in the Trinity. Praise (of beauty), service (of goodness), and contemplation (of truth) are essential to the full expression of our humanity. The cosmos is liturgical by its very nature.

This book can be no more than an initiation, an introduction to a certain view summarized in these three points. For those who wish to go further and deeper, I have tried to indicate in my notes and references resources that will assist. (I particularly recommend Michael S. Schneider’s enormously rich and enjoyable textbook, *A Beginner’s Guide to Constructing the Universe*.) But given the present crisis in education, and the desperate need to rethink the way we approach our

5. Basil the Great, from a sermon “To Young Men” cited in Gamble 2007, 184–85.

whole scheme of human knowledge, I make no apology for offering a kind of “manifesto,” which inevitably skims over many important debates. It will be helpful to those who have recognized the problem, since it points in the only direction a solution may be found. To those who are confused about the purposes of education—including perhaps their own—it may throw some light into the shadows of our time. We do not need to be content with our fragmented worldview, our fractured mentality. It is not too late to seek the One who is “before all things” and in whom “all things hold together” (Col. 1:17). To all those who are on that journey this book is respectfully dedicated.

## The Tradition of the Four Ways

[Socrates:] I am amused, I said, at your fear of the world, which makes you guard against the appearance of insisting upon useless studies; and I quite admit the difficulty of believing that in every man there is an eye of the soul which, when by other pursuits lost and dimmed, is by these purified and re-illuminated; and is more precious by far than ten thousand bodily eyes, for by it alone is truth seen.

Plato, *The Republic*, Book 7<sup>1</sup>

Teachers often tell us that modern students don't know how to *think*. Setting aside the fact that this is a perennial complaint, made by teachers about their students in every age, it may be true that the conditions of modern life militate against independent thought in particular ways. Silence is rare, entertainment is all-pervasive, the pressure to consume-and-discard is almost irresistible. No one has put it better than G. K. Chesterton did in 1930: "People are inundated, blinded, deafened, and mentally paralysed by a flood

1. Plato 1892, 3:230.

of vulgar and tasteless externals, leaving them no time for leisure, thought, or creation from within themselves.”<sup>2</sup> The situation has grown worse in every decade since.

No wonder students come to a college education expecting nothing more than a set of paper qualifications that will enable them to earn a decent salary. The idea that they might be there to grow as human beings, to be inducted into an ancient culture, to become somehow *more* than they are already, is alien to them. They expect instant answers, but they have no deep questions. The great questions have not yet been woken in them. The process of education requires us to become open, receptive, curious, and humble in the face of what we do not know. The world is a fabric woven of mysteries, and a mystery is a provocation to our humanity that cannot be dissolved by googling a few more bits of information.

### The Great Tradition

The Liberal Arts tradition stands at the origin of the idea of university education in the West. The Liberal Arts (from *liber* meaning free) were intended to train man<sup>3</sup> in the use of his freedom, and to prepare the student for the higher study of philosophy and theology, through which one may become truly free, fully human.<sup>4</sup> (They were contrasted with the so-called “Servile Arts,” which is not a term of contempt but covers branches of knowledge oriented toward practical ends or economic purposes, such as fabric-making, metalworking and architecture, commerce and agriculture, hunting, navigation, medicine, and entertainment.) In other words, philosophy and theology were not—as they have become—“subjects” defined by a certain content, on the same level as everything else, accessible

2. In a lecture at the University of Toronto called “Culture and the Coming Peril,” paraphrased in Ward 1949, 500.

3. The concept of universal education, of course, is a modern one. Higher education traditionally excluded women, slaves, and indeed everyone except the free man or citizen whose calling was to rule and to contemplate. My intention in this book, however, is to use the word “man” inclusively as applying to both sexes.

4. See Pieper 1998, 21–26, and the longer account in Dawson 1989. For a broad selection of classic texts on education from Plato onward, see Gamble 2007.

to anyone. We had to *become capable of them*, and the Liberal Arts were our preparation. In the modern university this preparation is usually missing, and so are the higher studies themselves. Only the names are left.

University education is usually traced back to the Greek philosopher Socrates and his (moral) victory over his state executioners. In his own life he demonstrated his own teaching, summarized in the *Phaedo*, that philosophy is a preparation for dying; or rather, for dying *well*. Of course, Socrates, who wrote nothing down except in the immortal souls of his disciples, would have been unknown to later generations except for the work of one of those disciples, Plato. Through Plato's Academy from 387 BC and Aristotle's Lyceum from 335 until their closure possibly in AD 529, and the writings and followers of both men, the principles instilled by Socrates were transmitted and applied by later educators.<sup>5</sup>

What were those principles? In essence, that it is the nature and calling of the human being to *know*: to know truth, being, wisdom, goodness, virtue—the forms, or the highest causes. It is in knowledge that we transcend our limitations (including the limitations of mortality) and become identified with the truth that is our highest and deepest ground, beyond all that the senses can offer. But knowledge can only be attained through the systematic ordering of the soul or personality in pursuit of integrity; that is, the discipline of thought (by logic) and will (by virtue).

In Books 6 and 7 of his dialogue *The Republic*, Plato spends some time discussing the levels of being and the levels of knowledge, and the ascent of the mind through education. There are four levels of knowledge, the highest of which he calls reason (*nous*), followed by

5. The teaching of Socrates was imparted by a method of gentle but relentless questioning (*elenchus*). In this way he encouraged reasoned reflection about matters that the young men of Athens had previously been content to leave in the domain of mythology, awakening in them a desire not merely to “know” but to “understand.” The figure of Socrates is the paradigm of the philosopher-sage. According to Pierre Hadot, ancient philosophy in general is misunderstood if we forget that the words on the page were merely a part, and not necessarily the most important part, of a series of spiritual exercises (Hadot 1995). As for the significant differences between Plato and Aristotle, whose influences on later tradition are intertwined, they cannot be examined here.

understanding, opinion, and the “perception of shadows” or mere sensory awareness. The power of learning exists in the soul, but “the instrument of knowledge can only *by the movement of the whole soul* be turned from the world of becoming to that of being, and learn by degrees to endure the sight of being, and of the brightest and best of being, or in other words, of the good.”<sup>6</sup>

He then explores how the soul is to be moved as a “whole,” in order to become acquainted with the highest reality, the “good.” The key disciplines he proposes are arithmetic, plane and solid geometry, astronomy, and the study of harmony. In each case he distinguishes a lower and a higher use of the discipline, the lower being its employment for practical and worldly purposes and the higher for the purpose of finding “the beautiful and the good”—seeing through the patterns of the numbers or the stars to the eternal realities they can reveal to the inner eye of the mind. And when these different studies are pursued in this way, they converge and commingle:

Now, when all these studies reach the point of intercommunion and connection with one another, and come to be considered in their natural affinities, then, I think, but not till then, will the pursuit of them have a value for our objects; otherwise there is no profit in them.<sup>7</sup>

It is then that they are severally taken up into what Plato calls the “hymn of dialectic,” or philosophy, attaining “a conception of the essence of each thing” and a vision of the eternal light.

The “circle of learning” (from which we get our word *encyclopedia*) was systematized into nine fields of study by the Roman Marcus Varro in the first century after Christ, and refined by Augustine, Boethius,<sup>8</sup> and Cassiodorus into a list of seven divided into two groups. The first group, the *trivium* (three ways), consisted of:

- grammar
- rhetoric
- dialectic

6. Plato 1892, 3:218.

7. *Ibid.*, 234.

8. For details see Chadwick 1981, 69–173.

These three *artes sermocinales* (“language studies”), taught through the study of literature, would enable a student to express himself, to communicate with others, and to argue effectively for a point of view. The second group comprised the *quadrivium* (or the four ways) of sacred sciences known as the *artes reales*, or *physicae*. These were the disciplines by which Plato believed the inner vision of the soul could be awakened:

- arithmetic
- geometry
- astronomy
- music

In fact they went back further than Plato, for it was the Pythagoreans who had originally grouped them together.<sup>9</sup>

Dorothy Sayers, in a well-known essay “The Lost Tools of Learning,” provides an eloquent argument for the importance of reviving the *trivium* for young people today. Without a basic training in how to think, argue, and communicate, children are not ready for the study of “subjects” or equipped for the real world. We flood their environment with words, but they “do not know what the words mean; they do not know how to ward them off or blunt their edge or fling them back; they are a prey to words in their emotions instead of being masters of them in their intellects.”<sup>10</sup> But Sayers’s essay neglects the *quadrivium*, almost as though liberal education were a matter of the *trivium* alone. She implies that the former amounted to little more than a collection of topics, and reduces mathematics entirely to a branch of logic (for her it is “neither more nor less than the rule of the syllogism in its particular application to number and measurement”).<sup>11</sup>

On the contrary, the *quadrivium* is essential to a liberal education in the traditional sense. And since we can normally only advance from sense-perception to intellectual intuition by way of intellec-

9. Kahn 2001, 13.

10. Sayers 1973, 118.

11. *Ibid.*, 127.

tual argumentation, the *quadrivium* necessarily involved the study of number and its relationship to physical space or time, preparatory to the study of philosophy (in the higher sense of that word) and theology: arithmetic being pure number, geometry number in space, music number in time, and astronomy number in both space and time.<sup>12</sup>

Once generally accepted, the list of seven literate and numerate arts created a framework within which civilized thought and behavior could be transmitted down the generations. Classical educational ideals and literacy were preserved through the dark ages after the fall of Roman civilization within oases provided by the Benedictine and other monasteries. In the early ninth century, the Emperor Charlemagne, having reunited much of Western Europe by military conquest, tried to instill in his courtiers a love of learning with the help of monks he co-opted for the purpose (the foremost being Alcuin of York, known as the “schoolmaster of Europe”). In England, King Alfred did something similar later in the same century.

By the twelfth century, Hugh of St. Victor (d. 1141) was able to write in his *Didascalicon*:

Out of all the sciences . . . the ancients, in their studies, especially selected seven to be mastered by those who were to be educated. These seven they considered so to excel all the rest in usefulness that anyone who had been thoroughly schooled in them might afterward come to knowledge of the others by his own inquiry and effort rather than by listening to a teacher. For these, one might say, constitute the best instruments, the best rudiments, by which the way is prepared for the mind's complete knowledge of philosophic truth. Therefore they are called by the name *trivium* and *quadrivium*, because by them, as by certain *ways* (*viae*), a quick mind enters into the secret places of wisdom.<sup>13</sup>

Note the higher sense of “usefulness” operating in this text. Hugh is speaking of a higher-order utility than that of the Servile Arts, since

12. Thus John Henry Newman in *The Idea of a University* speaks of a liberal education as consisting of four studies—Grammar, Rhetoric, Logic, and Mathematics. The fourth contains the entire *quadrivium*: Geometry, Arithmetic, Astronomy, and Music (Newman 1982, 195).

13. Hugh of St. Victor 1991, 86–87.

it involves the acquisition of skills that liberate the learner from further dependence on a teacher, and conduce by stages to philosophic wisdom, and meditation on what is revealed by holy scripture, as the highest end of man.

Within this general framework, and from the schools associated with great cathedrals, there developed by the thirteenth century communities of scholars bound together by formal charter—the first “universities” in the West: Bologna, Paris, and Oxford. A Master of Arts degree was succeeded (for those who could persevere for up to twelve more years of education) by a Doctorate in higher studies. The earliest such university, that of Bologna, began as a faculty of law, Paris came to specialize in theology, while Oxford developed a concentration on mathematics and natural science.

Faculty of  
THEOLOGY or DIVINITY

Faculty of  
LAW

Faculty of  
MEDICINE

Faculty of  
ARTS or PHILOSOPHY

*Trivium* (B.A.) followed by *quadrivium* (M.A.)  
then Philosophy (metaphysical, natural, and moral)

*The four Faculties in a medieval university c. 1400*

In the East a variety of institutions devoted to intellectual study had already emerged as successors to the great center of learning at Alexandria conquered by the Muslims in 642, both in Byzantium, where the Palace School functioned essentially for a thousand years from 425, and within the Islamic world, most famously Baghdad’s “House of Wisdom” founded in 813 by a caliph allegedly inspired to do so by Aristotle in a dream. These had accumulated a great treasure of texts from the classical world (Euclid, Aristotle, etc.) and commentaries upon them. The relatively easy flow of this information around and into Europe between and among Christian, Jewish, and Islamic scholars (especially in Salerno and Toledo) was a distinctive

characteristic of the twelfth century and helped to lay the foundations of the modern world.

Arguably, despite the great achievements of medieval civilization, in general the potential of the Liberal Arts for intellectual and spiritual integration failed to be manifested. Scholastic disputation certainly refined the power of thought. It led Aquinas to the important distinction between philosophy and theology, and this contributed to the emergence of a distinct department of philosophy within the faculty of Arts—a process that began in the thirteenth century. Furthermore his recognition that God causes creatures to be subordinate but real causes in their own right made possible the emergence of the natural sciences. Pope Benedict XVI writes:

It is the historical merit of Saint Thomas Aquinas—in the face of the rather different answer offered by the Fathers, owing to their historical context—to have highlighted the autonomy of philosophy, and with it the laws and the responsibility proper to reason, which enquires on the basis of its own dynamic . . . Thomas was writing at a privileged moment: for the first time, the philosophical works of Aristotle were accessible in their entirety; the Jewish and Arab philosophies were available as specific appropriations and continuations of Greek philosophy. Christianity, in a new dialogue with the reasoning of the interlocutors it was now encountering, was thus obliged to argue a case for its own reasonableness. The faculty of philosophy, which as a so-called “arts faculty” had until then been no more than a preparation for theology, now became a faculty in its own right, an autonomous partner of theology and the faith on which theology reflected.<sup>14</sup>

But the rise of nominalism among the Franciscans undermined a metaphysical vision of the cosmos,<sup>15</sup> and the over-specialization of university faculties led to a breakdown in the essential conversation between disciplines. Apart from a few great thinkers and teachers

14. Benedict XVI, Lecture at the University of Rome “La Sapienza,” January 17, 2008. There is an interesting account of this process in MacIntyre 1990, 156–57.

15. I will touch on this again in chapter 5 (the section on architecture), chapter 6, and in the conclusion. The breakdown of the medieval worldview and the reasons for the decline of sacred science are summarized in Bouyer 1988 (chap. 12) and Nasr 1996 (chap. 4). Cf. Dupré 1993.

such as Aquinas and Bonaventure,<sup>16</sup> the medieval ideal was instantiated most perfectly not in the universities at all, but in the great cathedrals such as Chartres, Amiens, and Notre Dame—and in the liturgies they were designed to serve. Here the sacred sciences of the *quadrivium* were expressed in massed stone and statuary, rose windows and labyrinths, and in the interplay between light, music, and sacramental gesture.

Meanwhile technological progress made in the Servile Arts, also known as the Mechanical Arts, coupled with the new notion that the purpose of “science” was to be useful—which had come to mean obtaining power over nature rather than wisdom<sup>17</sup>—was to reshape the world in ways that the ancient and medieval authors could hardly have conceived.

### Adapting the Medieval Model

It is fairly clear that if the Seven Liberal Arts model is to become an adequate basis for education today, whether in colleges or in less formal settings, it needs to be broadened and adapted. Even by the thirteenth century the Liberal Arts were bursting at the seams trying to incorporate new knowledge.

In *The Crisis of Western Education* and other works, Christopher Dawson argued that, while the universities should concentrate more on the Liberal Arts and less on the Servile Arts, a simple revival of the *quadrivium* would not be sufficient to bring about a return to right reason. Young people need to be made aware of the spiritual unity out of which the separate activities of our civilization have arisen, and his proposal was to do that by teaching culture *historically*, using the literature of medieval Europe rather than the classical sources the medievals themselves would have used. Teaching the story of Christian culture may be the best way to “maintain the tradition of liberal education against the growing pressure of scientific specialization and

16. See especially St. Bonaventure’s lecture *De Reductione Artium ad Theologiam* (originally written around 1250), in some ways the most perfect medieval treatise on education.

17. Sir Francis Bacon formulated the now famous aphorism “knowledge is power” in 1597.

utilitarian vocationalism,” he thought. (Thinking like this lay behind the development of the “great books” program in many American universities and colleges.)<sup>18</sup>

Symptoms of our educational crisis, such as the fragmentation of the disciplines, the separation of faith and reason, the reduction of quality to quantity, and the loss of a sense of ultimate purpose, are directly related to a lack of historical awareness on the part of students. An integrated curriculum must teach subjects, and it must teach the right subjects, but it should do so by incorporating each subject, even mathematics and the hard sciences, within the history of ideas, which is the history of our culture. Every subject has a history, a drama, and by imaginatively engaging with these stories we become part of the tradition.

We also need to confront the secular mind-set that makes the cosmological assumptions of the *quadrivium* almost unintelligible today (I will write more about this later). The sheer amount of information available in every discipline is far too great to be mastered by one person even in an entire lifetime. The purpose of an education is not merely to communicate information, let alone current scientific opinion, nor to train future workers and managers. It is to teach the ability to think, discriminate, speak, and write, and, along with this, the ability to perceive the inner, connecting principles, the intrinsic relations, the *logoi*, of creation, which the ancient Christian Pythagorean tradition (right through the medieval period) understood in terms of number and cosmic harmony.

In *The Idea of a University*, John Henry Newman, charged in the 1850s by the Archbishop of Armagh with the task of shaping a Catholic University for Ireland, defends the tradition of the Liberal Arts education and tries to adapt it to the needs of the modern world. The principle remains the same: knowledge is its own end—“worth possessing for what it is, and not merely for what it does.”<sup>19</sup> It is not to be valued for the power it gives us over nature, or even for the moral improvement it may bring about in us (even if these things may flow from it). It is to be valued for its *beauty*. “There is a physical beauty

18. Dawson 1989, 145. Cf. Bloom 1987.

19. Newman 1982, 86.

and a moral: there is a beauty of person, there is a beauty of our moral being, which is natural virtue; and in like manner there is a beauty, there is a perfection, of the intellect.”<sup>20</sup>

Newman writes that this perfection of the intellect consists in

the clear, calm, accurate vision and comprehension of all things, as far as the finite mind can embrace them, each in its place, and with its own characteristics upon it. It is almost prophetic from its knowledge of history; it is almost heart-searching from its knowledge of human nature; it has almost supernatural charity from its freedom from littleness and prejudice; it has almost the repose of faith, because nothing can startle it; it has almost the beauty and harmony of heavenly contemplation, so intimate is it with the eternal order of things and the music of the spheres.<sup>21</sup>

Almost “supernatural,” then, but not quite. (“Liberal Education,” he writes, “makes not the Christian, not the Catholic, but the gentleman.”<sup>22</sup>) Yet Newman, writing as he is about a Catholic university, insists that the supernatural must have its place, its entry point, in the circle of knowledge. After all, science, like poetry, begins with a search for unifying principles, and the unifying factor in creation is its relation to God. “I have said that all branches of knowledge are connected together, because the subject matter of knowledge is intimately united in itself as being the acts and work of the Creator.”<sup>23</sup> That much could be said without a specific faith, yet as Newman argues, if revelation tells us something true about the Creator, that something has a bearing on all fields of study, and theology must be allowed a voice in the great conversation that is the modern university.

By Newman’s time, of course, under the peculiar conditions of the Enlightenment, the earlier elevation of theological wisdom to the

20. Ibid., 92.

21. Ibid., 105. Newman is sometimes accused of being a nominalist, but a convincing case against this interpretation, based partly on his recognition of moral universals, is made by Merrigan 1991, 116–23.

22. Newman 1982, 91.

23. Ibid., 75. This was also the main point of Bonaventure’s *De Reductione*, though the two approaches are very different.

position of being the end and goal of a liberal education had resulted in a separation of theology from the rest of the curriculum—even from philosophy, which could be said to have arisen as a separate subject precisely to mediate between theology and the *quadrivium*. In the new secular universities theology had the lower status of a specialization for professionals (those in training for the priesthood), or could be dismissed altogether. Newman had to fight an intellectual battle to defend the key role of theology in the complete university curriculum.

Theology, therefore, has an important place in the integration of the arts and sciences. Equally important, however, is a symbolic approach to number and shape—that is, the awareness that mathematics has a qualitative, as distinct from a purely quantitative, dimension. Mathematics is the language of science, but it is also the hidden structure behind art (the philosopher Leibnitz famously described music as the pleasure the human mind experiences from counting without being aware that it is counting), and its basis is the invisible Logos of God. We do not have to follow the ancient symbolic reading of mathematics slavishly, but only be open to the presence of meaning where the modern mind sees none. Then it may be that we will open up a lost dimension in which the disciplines themselves will discover their relationship to one another.

Pope Benedict XVI, in another address to university professors, called for a “new humanism” based on a broader concept of the human (one that respects our transcendent vocation) and a broader concept of reason itself.

A correct understanding of the challenges posed by contemporary culture, and the formulation of meaningful responses to those challenges, must take a critical approach towards narrow and ultimately irrational attempts to limit the scope of reason. The concept of reason needs instead to be “broadened” in order to be able to explore and embrace those aspects of reality which go beyond the purely empirical. This will allow for a more fruitful, complementary approach to the relationship between faith and reason. The rise of the European universities was fostered by the conviction that faith and reason are meant to cooperate in the search for truth, each respecting the nature and legitimate autonomy of the other, yet working together harmo-

niously and creatively to serve the fulfilment of the human person in truth and love.<sup>24</sup>

He went on to speak of the urgent need to “rediscover the unity of knowledge and to counter the tendency to fragmentation and lack of communicability” that afflicts the academic disciplines at present. (The fracturing of knowledge is of course also of concern to secularists such as Allan Bloom.) An education worthy of the name would develop an awareness of the totality through art and literature, music, mathematics, physics, biology, and history. Each subject has its own autonomy, but at its heart it connects with every other.

### Beauty for Truth’s Sake

If beauty is a key to that lost unity, it is because beauty (according to the medieval philosophers) is one of the “transcendental” properties of being, that is, properties found in absolutely everything that exists. These properties include being, truth, goodness, and unity. *Everything*, in other words, is true, good, and beautiful in some degree or in some respect. All that exists—because it gives itself, because it means something—is a kind of “light.” It reveals its own nature and at the same time an aspect of that which gives rise to it. Beauty is the *radiance* of the true and the good, and it is what attracts us to both.<sup>25</sup>

Who will not admit that harmony is more beautiful than dissonance, health more beautiful than sickness, kindness more beautiful than cruelty? If you push the postmodern relativist, you will almost certainly be able to get an admission that he would prefer to look up at a gorgeous sunset than down into the latrine. Now why is that?

24. Benedict XVI 2007.

25. See the discussion in Reale 1997. Beauty is like light because it “makes us see the One in the proportional and numerical relations by which it unfolds in the physical dimension of the visible as well as at the level of the intelligible” (301). There have of course been many attempts to account for the experience of beauty in neurological terms. H. E. Huntley gives some examples in his book *The Divine Proportion*. But reductionist explanations have a fundamental weakness. Actual lived experience is irreducible. If consciousness can be correlated with events in the brain, the decision to give the one ontological priority over the other remains a philosophical decision.

Is it really just a matter of taste? The artist, architect, and designer Christopher Alexander once designed an empirical test to train people in their perception of beauty and of what he calls the quality of “life” in things.<sup>26</sup> In comparing any two objects chosen at random, Alexander shows how different types of questions determine the *level* of our response to the objects. For example:

1. Which is the more *attractive* of these two objects?
2. Which do you like best? *Why* do you like it?
3. Which gives you the most *wholesome* feeling?
4. Which of them better represents *your whole self*?
5. If you had a choice, which would you *spend eternity with*?
6. Which of them would you be happier to *offer to God*?

Questions 4, 5, and 6 evoke a deeper response, and he finds that ninety percent of his students end up selecting the same object when asked these questions, whereas they will rarely do so if asked the first three questions.

According to Socrates, “The object of education is to teach us to love what is beautiful.”<sup>27</sup> He meant, of course, what is *objectively* beautiful. We have been taught that beauty is a matter of feeling. That is not entirely wrong. The perception of beauty has to do with feelings, but this does not mean it is “purely subjective.” Feelings, if properly refined and educated, can help us tell the difference between true and false.<sup>28</sup>

It is not just the artist who needs to orient himself in a dimension of objective truth and beauty. The same applies to the scientist, as I have already suggested. Physicist David Bohm emphasizes the relevance of beauty to science:

Now, there is a common notion that beauty is nothing more than a subjective response of man, based on the pleasure that he takes in seeing what appeals to his fancy. Nevertheless, there is much evidence that

26. Alexander 2004.

27. Cited in Taylor 1998, 17.

28. None of which is to deny the very real beauty to be found in modern and postmodern works. Beauty exists in many modes as well as degrees, and the definition of beauty is by no means as easy as the medieval scholastics thought.

beauty is not an arbitrary response that happens to “tickle” us in a pleasing way. In science, for example, one sees and feels the beauty of a theory only if the latter is ordered, coherent, harmonious with all parts generated naturally from simple principles, and with these parts working together to form a unified total structure. But these properties are necessary not only for the beauty of a theory, but also for its truth.

Of course, in a narrow sense, no theory is true unless it corresponds to the facts. But as we consider broader and broader kinds of theories, approaching those of cosmology, this notion becomes inadequate . . . In the broad sense with which cosmology is concerned, the universe as a whole is to be understood as “true to itself”—a unified totality developing coherently in accordance with its basic principles. And as man appreciates this, he senses that his own response with feelings of harmony, beauty, and totality is parallel to what he discovers in the universe. So, in a very important way, the universe is seen to be less alien to man than earlier excessively mechanistic points of view seemed to indicate.<sup>29</sup>

Another quotation will emphasize why beauty is essential, and what happens when it is neglected. This is from Hans Urs von Balthasar, who has had the courage to rewrite the history of theology from the point of view of beauty in his seven-volume work *The Glory of the Lord*:

We no longer dare to believe in beauty and we make of it a mere appearance in order the more easily to dispose of it. Our situation today shows that beauty demands for itself at least as much courage and decision as do truth and goodness, and she will not allow herself to be separated and banned from her two sisters without taking them along with herself in an act of mysterious vengeance.<sup>30</sup>

Elsewhere he describes what happens when the relationship that should exist between nature and grace is destroyed, and beauty is lost after all:

Then the whole of worldly being falls under the dominion of “knowledge,” and the springs and forces of love immanent in the world are overpowered and finally suffocated by science, technology and cy-

29. Bohm 1996, 39–40.

30. Balthasar 1982, 18.

bernetics. The result is a world without women, without children, without reverence for love in poverty and humiliation—a world in which power and the profit-margin are the sole criteria, where the disinterested, the useless, the purposeless is despised, persecuted and in the end exterminated—a world in which art itself is forced to wear the mask and features of technique.<sup>31</sup>

Thus the person who sneers at beauty “can no longer pray and soon will no longer be able to love.”<sup>32</sup> Prayer can only be motivated by a love that reveals the beauty we long for, denial of which cuts off at its root the ability to pray.

### Beauty on the Cross

Both science and art operate and live in the depth-dimension of things, exploring aspects of beauty and truth.<sup>33</sup>

For Christians, the place to look for answers to all the important questions is the Cross of Christ. In that Cross, read in the light of faith and tradition, we can find the keys to unlock the doors of the world. And what we see there is not a distant world of Platonic archetypes, but the Archetype of archetypes wedded to the world, and allowing itself to be crushed by the world in order to transform it.

Perhaps a scientist would see on the Cross an answer to the question, *What is science?* For science is about the quest for knowledge, and here we have the image of knowledge, of ultimate realism about the world and the way it works. Jesus the Logos submits to that fallen world, he allows it to act upon him, in order to reveal its true nature. In a faint and feeble way, the scientific method finds its archetype here, albeit infinitely transcended.

We can also read there an answer to the question, *What is art?* And we see that art is not necessarily “beautiful” in any superficial way. The figure on the Cross, covered in blood and spittle, has been made

31. Balthasar 1968, 114–15.

32. Balthasar 1982, 18.

33. Goodness too, although I have not dwelt on the ethical dimension of science. Neither science nor art operate outside the moral sphere, and to emancipate them entirely from morality is just as bad a mistake as to emancipate them from beauty.

repulsive by torment. What we see, nevertheless, is the supreme work of art. We see a divine act that takes existing matter, the matter of history and prophecy, and weaves it into a new design, a fulfilment that could not have been expected or predicted but, seen by those who have the eyes and ears for it, is perfect, as though no stroke of the pen, no flick of paint, no note or chord, could be changed without diminishment. We see on the Cross an image that transforms the way we view the world. The passion of Christ the Logos changes the world and remakes it, creating something new of it, bringing life out of death.

On the further side of death, beyond the ugliness converted by an inward act into the supreme expression of love, in the body of the resurrected, even the wounds now shine like jewels. Beauty (as glory) exists in the Trinity before, during, and after time. David Bentley Hart writes:

God's beauty is delight and the object of delight, the shared gaze of love that belongs to the persons of the Trinity; it is what God beholds, what the Father sees and rejoices in the Son, in the sweetness of the Spirit, what Son and Spirit find delightful in one another, because as Son and Spirit of the Father they share his knowledge and love as person. This cannot be emphasized enough: the Christian God, who is infinite, is also infinitely *formosus*, the supereminent fullness of all form, transcendently determinate, always possessed of his Logos. True beauty is not the idea of the beautiful, a static archetype in the "mind" of God, but is an infinite "music," drama, art, completed in—but never "bounded" by—the termless dynamism of the Trinity's life; God is boundless, and so is never a boundary; his music possesses the richness of every transition, interval, measure, variation—all dancing and delight. And because he is beautiful, being abounds with difference: shape, variety, manifold relation. Beauty is the distinction of the different, the otherness of the other, the true form of distance.<sup>34</sup>

It is, we should add, difference or otherness held in a unity that does not destroy uniqueness. As Hart explains, if the Trinity were instead a Duality, God would not be love but narcissism, and beauty would lose its radiance. It is the Holy Spirit, the fact that true love

34. Hart 2003, 177.

is always turned away from itself, pouring itself out for others, that makes it open and radiant, and creates room in the Trinity for the creation itself, as well as for all the suffering and all the sacrifice that creation involves. The Trinity is the home of the Logos and the shape of love. These are high secrets of our Western tradition, and together they offer the key to its renewal.