

Seminar 2.2: Knowledge as Revelation in the Arts *and* the Sciences

- J.R.R. Tolkien, “On Faery Stories,” Selections [1-4]
- St. Pope John Paul II, “Letter to Father George V. Coyne, Director of the Vatican Observatory,” Selections [4-8]

J.R.R. Tolkien (1892–1973), “Fairy Stories,” (March 8, 1939) retitled as the essay “On Fairy-Stories.”

A “fairy-story” is one which touches on or uses Faerie, whatever its own main purpose may be: satire, adventure, morality, fantasy. Faerie itself may perhaps most nearly be translated by Magic — but it is magic of a peculiar mood and power, at the furthest pole from the vulgar devices of the laborious, scientific, magician. There is one proviso: if there is any satire present in the tale, one thing must not be made fun of, the magic itself. That must in that story be taken seriously, neither laughed at nor explained away.

...

Mythology is not a disease at all, though it may like all human things become diseased. You might as well say that thinking is a disease of the mind. It would be more near the truth to say that languages, especially modern European languages, are a disease of mythology. But Language cannot, all the same, be dismissed. The incarnate mind, the tongue, and the tale are in our world coeval. The human mind, endowed with the powers of generalization and abstraction, sees not only green-grass, discriminating it from other things (and finding it fair to look upon), but sees that it is green as well as being grass. But how powerful, how stimulating to the very faculty that produced it, was the invention of the adjective: no spell or incantation in Faerie is more potent. And that is not surprising: such incantations might indeed be said to be only another view of adjectives, a part of speech in a mythical grammar. The mind that thought of light, heavy, grey, yellow, still, swift, also conceived of magic that would make heavy things light and able to fly, turn grey lead into yellow gold, and the still rock into a swift water. If it could do the one, it could do the other; it inevitably did both. **When we can take green from grass, blue from heaven, and red from blood, we have already an enchanter’s power — upon one plane; and the desire to wield that power in the world external to our minds awakes. It does not follow that we shall use that power well upon any plane. We may put a deadly green upon a man’s face and produce a horror; we may make the rare and terrible blue moon to shine; or we may cause woods to spring with silver leaves and rams to wear fleeces of gold, and put hot fire into the belly of the cold worm. But in such “fantasy,” as it is called, new form is made; Faerie begins; Man becomes a sub-creator.**

...

The mental power of image-making is one thing, or aspect; and it should appropriately be called Imagination. The perception of the image, the grasp of its implications, and the control, which are necessary to a successful expression, may vary in vividness and strength: but this is a difference of degree in Imagination, not a difference in kind. The achievement of the expression, which gives (or seems to give) “the inner consistency of reality,” is indeed another thing, or aspect, needing another name: Art, the operative link between Imagination and the final result, Sub-creation. For my present purpose I require a word which shall embrace both the Sub-creative Art in itself and a quality of strangeness and wonder in the Expression, derived from the Image: a quality essential to fairy-story. I propose, therefore, to arrogate to myself the powers of Humpty-Dumpty, and to use Fantasy for this

purpose: **in a sense, that is, which combines with its older and higher use as an equivalent of Imagination the derived notions of “unreality” (that is, of unlikeness to the Primary World), of freedom from the domination of observed “fact,” in short of the fantastic.** I am thus not only aware but glad of the etymological and semantic connexions of fantasy with fantastic: with images of things that are not only “not actually present,” but which are indeed not to be found in our primary world at all, or are generally believed not to be found there. But while admitting that, I do not assent to the depreciative tone. **That the images are of things not in the primary world (if that indeed is possible) is a virtue, not a vice. Fantasy (in this sense) is, I think, not a lower but a higher form of Art, indeed the most nearly pure form, and so (when achieved) the most potent.**

...It is found in practice that “the inner consistency of reality” is more difficult to produce, the more unlike are the images and the rearrangements of primary material to the actual arrangements of the Primary World. It is easier to produce this kind of “reality” with more “sober” material. Fantasy thus, too often, remains undeveloped; it is and has been used frivolously, or only half-seriously, or merely for decoration: it remains merely “fanciful.” Anyone inheriting the fantastic device of human language can say the green sun. Many can then imagine or picture it. But that is not enough — though it may already be a more potent thing than many a “thumbnail sketch” or “transcript of life” that receives literary praise. To make a Secondary World inside which the green sun will be credible, commanding Secondary Belief, will probably require labour and thought, and will certainly demand a special skill, a kind of elvish craft. Few attempt such difficult tasks. But when they are attempted and in any degree accomplished then we have a rare achievement of Art: indeed narrative art, story-making in its primary and most potent mode.

Fantasy is a natural human activity. It certainly does not destroy or even insult Reason; and it does not either blunt the appetite for, nor obscure the perception of, scientific verity. On the contrary. The keener and the clearer is the reason, the better fantasy will it make. If men were ever in a state in which they did not want to know or could not perceive truth (facts or evidence), then Fantasy would languish until they were cured. If they ever get into that state (it would not seem at all impossible), Fantasy will perish, and become Morbid Delusion.

For creative Fantasy is founded upon the hard recognition that things are so in the world as it appears under the sun; on a recognition of fact, but not a slavery to it. So upon logic was founded the nonsense that displays itself in the tales and rhymes of Lewis Carroll. If men really could not distinguish between frogs and men, fairy-stories about frog-kings would not have arisen.

Fantasy can, of course, be carried to excess. It can be ill done. It can be put to evil uses. It may even delude the minds out of which it came. But of what human thing in this fallen world is that not true? Men have conceived not only of elves, but they have imagined gods, and worshipped them, even worshipped those most deformed by their authors' own evil. But they have made false gods out of other materials: their notions, their banners, their monies; even their sciences and their social and economic theories have demanded human sacrifice. *Abusus non tollit usum*. Fantasy remains a human right: we make in our measure and in our derivative mode, because we are made: and not only made, but made in the image and likeness of a Maker.

Recovery, Escape, Consolation

Recovery (which includes return and renewal of health) is a re-gaining—regaining of a clear view. **I do not say “seeing things as they are” and involve myself with the philosophers, though I might venture to say “seeing things as we are (or were) meant to see them”—as things apart from**

ourselves. We need, in any case, to clean our windows; so that the things seen clearly may be freed from the drab blur of triteness or familiarity—from possessiveness. Of all faces those of our *familiares* are the ones both most difficult to play fantastic tricks with, and most difficult really to see with fresh attention, perceiving their likeness and unlikeness: that they are faces, and yet unique faces. This triteness is really the penalty of “appropriation”: the things that are trite, or (in a bad sense) familiar, are the things that we have appropriated, legally or mentally. We say we know them. They have become like the things which once attracted us by their glitter, or their colour, or their shape, and we laid hands on them, and then locked them in our hoard, acquired them, and acquiring ceased to look at them.

... Creative fantasy, because it is mainly trying to do something else (make something new), may open your hoard and let all the locked things fly away like cage-birds. The gems all turn into flowers or flames, and you will be warned that all you had (or knew) was dangerous and potent, not really effectively chained, free and wild; no more yours than they were you.

The “fantastic” elements in verse and prose of other kinds, even when only decorative or occasional, help in this release. But not so thoroughly as a fairy-story, a thing built on or about Fantasy, of which Fantasy is the core. Fantasy is made out of the Primary World, but a good craftsman loves his material, and has a knowledge and feeling for clay, stone and wood which only the art of making can give. By the forging of Gram cold iron was revealed; by the making of Pegasus horses were ennobled; in the Trees of the Sun and Moon root and stock, flower and fruit are manifested in glory.

And actually fairy-stories deal largely, or (the better ones) mainly, with simple or fundamental things, untouched by Fantasy, but these simplicities are made all the more luminous by their setting. **For the story-maker who allows himself to be “free with” Nature can be her lover not her slave. It was in fairy-stories that I first divined the potency of the words, and the wonder of the things, such as stone, and wood, and iron; tree and grass; house and fire; bread and wine. ...**

Not long ago—incredible though it may seem—I heard a clerk of Oxenford declare that he “welcomed” the proximity of mass-production robot factories, and the roar of self-obstructive mechanical traffic, because it brought his university into “contact with real life.” ...the expression “real life” in this context seems to fall short of academic standards. The notion that motor-cars are more “alive” than, say, centaurs or dragons is curious; that they are more “real” than, say, horses is pathetically absurd. How real, how startlingly alive is a factory chimney compared with an elm-tree: poor obsolete thing, insubstantial dream of an escapist!

“The rawness and ugliness of modern European life”—that real life whose contact we should welcome —“is the sign of a biological inferiority, of an insufficient or false reaction to environment.” **The maddest castle that ever came out of a giant's bag in a wild Gaelic story is not only much less ugly than a robot-factory, it is also (to use a very modern phrase) “in a very real sense” a great deal more real.** Why should we not escape from or condemn the “grim Assyrian” absurdity of top-hats, or the Morlockian horror of factories? They are condemned even by the writers of that most escapist form of all literature, stories of Science fiction. These prophets often foretell (and many seem to yearn for) a world like one big glass-roofed railway-station. But from them it is as a rule very hard to gather what men in such a world-town will do. They may abandon the “full Victorian panoply” for loose garments (with zip-fasteners), but will use this freedom mainly, it would appear, in order to play with mechanical toys in the soon-cloying game of moving at high speed. To judge by some of these tales they will still be as lustful, vengeful, and greedy as ever; and the ideals of their idealists hardly

reach farther than the splendid notion of building more towns of the same sort on other planets. It is indeed an age of “improved means to deteriorated ends.” It is part of the essential malady of such days—producing the desire to escape, not indeed from life, but from our present time and self-made misery—that we are acutely conscious both of the ugliness of our works, and of their evil. So that to us evil and ugliness seem indissolubly allied. We find it difficult to conceive of evil and beauty together. The fear of the beautiful fay that ran through the elder ages almost eludes our grasp. Even more alarming: goodness is itself bereft of its proper beauty. In Faerie one can indeed conceive of an ogre who possesses a castle hideous as a nightmare (for the evil of the ogre wills it so), but one cannot conceive of a house built with a good purpose—an inn, a hostel for travellers, the hall of a virtuous and noble king—that is yet sickeningly ugly. At the present day it would be rash to hope to see one that was not—unless it was built before our time.

...

And lastly there is the oldest and deepest desire, the Great Escape: the Escape from Death. Fairy-stories provide many examples and modes of this—which might be called the genuine escapist, or (I would say) fugitive spirit. But so do other stories (notably those of scientific inspiration), and so do other studies. Fairy-stories are made by men not by fairies. The Human-stories of the elves are doubtless full of the Escape from Deathlessness. But our stories cannot be expected always to rise above our common level. They often do. Few lessons are taught more clearly in them than the burden of that kind of immortality, or rather endless serial living, to which the “fugitive” would fly. For the fairy-story is specially apt to teach such things, of old and still today.

But the “consolation” of fairy-tales has another aspect than the imaginative satisfaction of ancient desires. Far more important is the Consolation of the Happy Ending. Almost I would venture to assert that all complete fairy-stories must have it. The consolation of fairy-stories, the joy of the happy ending: or more correctly of the good catastrophe, the sudden joyous “turn” (for there is no true end to any fairy-tale): this joy, which is one of the things which fairy-stories can produce supremely well, is not essentially “escapist,” nor “fugitive.” In its fairy-tale—or otherworld—setting, it is a sudden and miraculous grace: never to be counted on to recur. **It does not deny the existence of dyscatastrophe, of sorrow and failure: the possibility of these is necessary to the joy of deliverance; it denies (in the face of much evidence, if you will) universal final defeat and in so far is evangelium, giving a fleeting glimpse of Joy, Joy beyond the walls of the world, poignant as grief.**

It is the mark of a good fairy-story, of the higher or more complete kind, that however wild its events, however fantastic or terrible the adventures, it can give to child or man that hears it, when the “turn” comes, a catch of the breath, a beat and lifting of the heart, near to (or indeed accompanied by) tears, as keen as that given by any form of literary art, and having a peculiar quality.

Even modern fairy-stories can produce this effect sometimes. It is not an easy thing to do; it depends on the whole story which is the setting of the turn, and yet it reflects a glory backwards. A tale that in any measure succeeds in this point has not wholly failed, whatever flaws it may possess, and whatever mixture or confusion of purpose. ... when the sudden “turn” comes we get a piercing glimpse of joy, and heart's desire, that for a moment passes outside the frame, rends indeed the very web of story, and lets a gleam come through.

John Paul II

Letter to the Reverend George V. Coyne SJ, Director of the Vatican Observatory (1988)

...The Church and the Academy engage one another as two very different but major institutions within human civilization and world culture. We bear before God enormous responsibilities for the human condition because historically we have had and continue to have a major influence on the development of ideas and values and on the course of human action. ...

So much of our world seems to be in fragments, in disjointed pieces. So much of human life is passed in isolation or in hostility. The division between rich nations and poor nations continues to grow; the contrast between northern and southern regions of our planet becomes ever more marked and intolerable. The antagonism between races and religions splits countries into warring camps; historical animosities show no signs of abating. Even within the academic community, the separation between truth and values persists, and the isolation of their several cultures – scientific, humanistic and religious – makes common discourse difficult if not at times impossible.

But at the same time we see in large sectors of the human community a growing critical openness towards people of different cultures and backgrounds, different competencies and viewpoints. More and more frequently, people are seeking intellectual coherence and collaboration, and are discovering values and experiences they have in common even within their diversities. This openness, this dynamic interchange, is a notable feature of the international scientific communities themselves, and is based on common interests, common goals and a common enterprise, along with a deep awareness that the insights and attainments of one are often important for the progress of the other. In a similar but more subtle way this has occurred and is continuing to occur among more diverse group – among the communities that make up the Church, and even between the scientific community and the Church herself. This drive is essentially a movement towards the kind of unity which resist homogenization and relishes diversity. Such community is determined by a common meaning and by a shared understanding that evokes a sense of mutual involvement. Two groups which may seem initially to have nothing in common can begin to enter into community with one another by discovering a common goal, and this in turn can lead to broader areas of shared understanding and concern.

...Turning to the relationship between religion and science, there has been a definite, though still fragile and provisional, movement towards a new and more nuanced interchange. We have begun to talk to one another on deeper levels than before, and with greater openness towards one another's perspectives. We have begun to search together for a more thorough understanding of one another's disciplines, with their competencies and their limitations, and especially for areas of common ground. In doing so we have uncovered important questions which concern both of us, and which are vital to the larger human community we both serve. It is crucial that this common search based on critical openness and interchange should not only continue but also grow and deepen in its quality and scope.

For the impact each has, and will continue to have, on the course of civilization and on the world itself, cannot be overestimated, and there is so much that each can offer the other. There is, of course, the vision of the unity of all things and all peoples in Christ, who is active and present with us in our daily lives – in our struggles, our sufferings, our joys and in our searchings – and who is the focus of the Church's life and witness. This vision carries with it into the larger community a deep reverence for all that is, a hope and assurance that the fragile goodness, beauty and life we see in the universe is moving towards a completion and fulfilment which will not be over-whelmed by the forces of dissolution and

death. This vision also provides a strong support for the values which are emerging both from our knowledge and appreciation of creation and of ourselves as the products, knowers and stewards of creation.

The scientific disciplines too, as is obvious, are endowing us with an understanding and appreciation of our universe as a whole and of the incredibly rich variety of intricately related processes and structures which constitute its animate and inanimate components. This knowledge has given us a more thorough understanding of ourselves and of our humble yet unique role within creation. Through technology it also has given us the capacity to travel, to communicate, to build, to cure, and to probe in ways which would have been almost unimaginable to our ancestors. Such knowledge and power, as we have discovered, can be used greatly to enhance and improve our lives or they can be exploited to diminish and destroy human life and the environment even on a global scale.

The unity we perceive in creation on the basis of our faith in Jesus Christ as Lord of the universe, and the correlative unity for which we strive in our human communities, seems to be reflected and even reinforced in what contemporary science is revealing to us. As we behold the incredible development of scientific research we detect an underlying movement towards the discovery of levels of law and process which unify created reality and which at the same time have given rise to the vast diversity of structures and organisms which constitute the physical and biological, and even the psychological and sociological, worlds.

Contemporary physics furnishes a striking example. The quest for the unification of all four fundamental physical forces – gravitation, electromagnetism, the strong and weak nuclear interactions – has met with increasing success. This unification may well combine discoveries from the sub-atomic and the cosmological domains and shed light both on the origin of the universe and, eventually, on the origin of the laws and constants which govern its evolution. Physicists possess a detailed though incomplete and provisional knowledge of elementary particles and of the fundamental forces through which they interact at low and intermediate energies. They now have an acceptable theory unifying the electro-magnetic and weak nuclear forces, along with much less adequate but still promising grand unified field theories which attempt to incorporate the strong nuclear interaction as well. Further in the fine of this same development, there are already several detailed suggestions for the final stage, superunification, that is, the unification of all four fundamental forces, including gravity. Is it not important for us to note that in a world of such detailed specialization as contemporary physics there exists this drive towards convergence?

In the life sciences, too, something similar has happened. Molecular biologists have probed the structure of living material, its functions and its processes of replication. They have discovered that the same underlying constituents serve in the make-up of all living organisms on earth and constitute both the genes and the proteins which these genes code. This is another impressive manifestation of the unity of nature.

... We might ask whether or not we are ready for this crucial endeavour. Is the community of world religions, including the Church, ready to enter into a more thorough-going dialogue with the scientific community, a dialogue in which the integrity of both religion and science is supported and the advance of each is fostered? Is the scientific community now prepared to open itself to Christianity, and indeed to all the great world religions, working with us all to build a culture that is more humane and in that way more divine? Do we dare to risk the honesty and the courage that this task demands? We must ask

ourselves whether both science and religion will contribute to the integration of human culture or to its fragmentation. It is a single choice and it confronts us all.

For a simple neutrality is no longer acceptable. If they are to grow and mature, peoples cannot continue to live in separate compartments, pursuing totally divergent interests from which they evaluate and judge their world. A divided community fosters a fragmented vision of the world; a community of interchange encourages its members to expand their partial perspectives and form a new unified vision.

Yet the unity that we seek, as we have already stressed, is not identity. The Church does not propose that science should become religion or religion science. On the contrary, unity always presupposes the diversity and the integrity of its elements. Each of these members should become not less itself but more itself in a dynamic interchange, for a unity in which one of the elements is reduced to the other is destructive, false in its promises of harmony, and ruinous of the integrity of its components. We are asked to become one. We are not asked to become each other.

To be more specific, both religion and science must preserve their autonomy and their distinctiveness. Religion is not founded on science nor is science an extension of religion. Each should possess its own principles, its pattern of procedures, its diversities of interpretation and its own conclusions. Christianity possesses the source of its justification within itself and does not expect science to constitute its primary apologetic. Science must bear witness to its own worth. ...

But why is critical openness and mutual interchange a value for both of us? Unity involves the drive of the human mind towards understanding and the desire of the human spirit for love. When human beings seek to understand the multiplicities that surround them, when they seek to make sense of experience, they do so by bringing many factors into a common vision. Understanding is achieved when many data are unified by a common structure. The one illuminates the many: it makes sense of the whole. Simple multiplicity is chaos; an insight, a single model, can give that chaos structure and draw it into intelligibility. We move towards unity as we move towards meaning in our lives. Unity is also the consequence of love. If love is genuine, it moves not towards the assimilation of the other but towards union with the other. Human community begins in desire when that union has not been achieved, and it is completed in joy when those who have been apart are now united.

...Now this is a point of delicate importance, and it has to be carefully qualified. Theology is not to incorporate indifferently each new philosophical or scientific theory. As these findings become part of the intellectual culture of the time, however, theologians must understand them and test their value in bringing out from Christian belief some of the possibilities which have not yet been realized. The hylomorphism of Aristotelian natural philosophy, for example, was adopted by the medieval theologians to help them explore the nature of the sacraments and the hypostatic union. This did not mean that the Church adjudicated the truth or falsity of the Aristotelian insight, since that is not her concern. It did mean that this was one of the rich insights offered by Greek culture, that it needed to be understood and taken seriously and tested for its value in illuminating various areas of theology. Theologians might well ask, with respect to contemporary science, philosophy and the other areas of human knowing, if they have accomplished this extraordinarily difficult process as well as did these medieval masters.

If the cosmologies of the ancient Near Eastern world could be purified and assimilated into the first chapters of Genesis, might not contemporary cosmology have something to offer to our reflections upon creation? Does an evolutionary perspective bring any light to bear upon theological anthropology, the meaning of the human person as the *imago Dei*, the problem of Christology – and even upon the development of doctrine itself? What, if any, are the eschatological implications of contemporary cosmology, especially in light of the vast future of our universe? Can theological method fruitfully appropriate insights from scientific methodology and the philosophy of science?

Questions of this kind can be suggested in abundance. Pursuing them further would require the sort of intense dialogue with contemporary science that has, on the whole, been lacking among those engaged in theological research and teaching. It would entail that some theologians, at least, should be sufficiently wellversed in the sciences to make authentic and creative use of the resources that the best-established theories may offer them. Such an expertise would prevent them from making uncritical and overhasty use for apologetic purposes of such recent theories as that of the “Big Bang” in cosmology. Yet it would equally keep them from discounting altogether the potential relevance of such theories to the deepening of understanding in traditional areas of theological inquiry.

...Can science also benefit from this interchange? It would seem that it should. For science develops best when its concepts and conclusions are integrated into the broader human culture and its concerns for ultimate meaning and value. Scientists cannot, therefore, hold themselves entirely aloof from the sorts of issues dealt with by philosophers and theologians. By devoting to these issues something of the energy and care they give to their research in science, they can help others realize more fully the human potentialities of their discoveries. They can also come to appreciate for themselves that these discoveries cannot be a genuine substitute for knowledge of the truly ultimate. Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes. Each can draw the other into a wider world, a world in which both can flourish.

For the truth of the matter is that the Church and the scientific community will inevitably interact; their options do not include isolation. Christians will inevitably assimilate the prevailing ideas about the world, and today these are deeply shaped by science. The only question is whether they will do this critically or unreflectively, with depth and nuance or with a shallowness that debases the Gospel and leaves us ashamed before history. Scientists, like all human beings, will make decisions upon what ultimately gives meaning and value to their lives and to their work. This they will do well or poorly, with the reflective depth that theological wisdom can help them attain, or with an unconsidered absolutizing of their results beyond their reasonable and proper limits.

Both the Church and the scientific community are faced with such inescapable alternatives. We shall make our choices much better if we live in a collaborative interaction in which we are called continually to be more. Only a dynamic relationship between theology and science can reveal those limits which support the integrity of either discipline, so that theology does not profess a pseudo-science and science does not become an unconscious theology. Our knowledge of each other can lead us to be more authentically ourselves. No one can read the history of the past century and not realize that crisis is upon us both. The uses of science have on more than one occasion proved massively destructive, and the reflections on religion have too often been sterile. We need each other to be what we must be, what we are called to be.