An inconvenient truth – *Galileo's Mistake: The Archaeology of a Myth* by Wade Rowland

Cherryl Martin

Cherryl Martin is a Strategic Management and Global Trends Consultant and Futurist based in Buckinghamshire, UK.

Abstract

Purpose – *The purpose of this paper is to critique the book* Galileo's Mistake: The Archaeology of a Myth *by Wade Rowland; providing additional insights into the subject of the work and trial of Galileo Galilei in the seventeenth century and its relevance to the modern world.*

Design/methodology/approach – *The case of Galileo is presented as a case study in modern change management.*

Findings – *The story of Galileo as passed down to us through the centuries has become mythologized and distorted as an example of a clash between religion and science. The facts as they are presented by the author reinforce this myth by applying modern arguments about the relative scope, practice and meaning of both science and religion in a situation where such arguments could not have been applied and were not relevant. Careful consideration of the wider global context reveals more plausible dimensions to the story.*

Practical implications – *The Galileo case study is a useful vehicle for teaching concepts about truth, knowledge, complexity theory and the potential and reasons for resistance to new ideas.*

Originality/value – *The paper aims to teach the importance of critically examining facts as they are presented, in terms of both content and context; of considering the wider, global implications and the motivations, strengths and weaknesses of the various players involved in any situation.*

Keywords *Change management, Case studies, Religion, Sciences*

Paper type *Literature review*

Al Gore, the ''could have been – should have been'' US President of 2000, opens his movie *The Inconvenient Truth* with a picture of the Earth seen from space – a ''pale blue dot'' in an immense ocean that is the universe. His campaign, to convince a largely skeptical American public and the rest of the world of the urgency of his message – that our future and the future of the earth itself is endangered by the profligate use of resources and unconstrained scientific advances; and that we have it in our power, individually and communally, to act to reverse the current trends and to save the planet – was received with anticipated degrees of enthusiasm, distain and outright hostility that perplexes those of us who understand his motivations.

The reaction to his sincere attempts at bringing an inconvenient truth to those who will not hear is reminiscent of another such event in our history – the trial of the Italian mathematician, astronomer, inventor and natural philosopher, Galileo Galilei by the Catholic Church for heresy in 1633. The parallels are unmistakable. Author Wade Rowland investigates the issues surrounding that earlier saga in his book *Galileo's Mistake*.

Galileo's Mistake is a pleasant, well written and entertaining read – but I found myself trying to find something in it that was missing – an essential part of the story that wasn't being told. The leisurely ramble through the places, art, events and issues associated with the trial that Rowland takes the reader on misses the drama and passion of an incident in our history that has defined our notions of truth for almost four centuries. By glossing over the critical events

 | VOL. 15 NO. 4 2007, pp. 256-264, © Emerald Group Publishing Limited, ISSN 1074-8121 DOI 10.1108/10748120710836282

that contributed to the closing of the Western mind to Eastern science and philosophies, and to the polarization of Western science and religion, he has perpetuated the myths, not dispelled them as he claims he set out to do.

Rowland uses a modern Italian setting for his story and the populist style of modern best-sellers like *Sophie's World*, *The Celestine Prophecy* and *The Da Vinci Code*: a style Plato used in his *Dialogues* and Galileo used in his two great controversial works: *Dialogue Concerning the Two Chief World Systems, Ptolemaic and Copernican* (1632) and *Dialogues Concerning Two New Sciences* (1638), in which philosophical arguments are embedded in a fictional narrative. It is a tried and tested format but one that can be distracting, since it appears too contrived in many parts of the book. By using this format, he succeeds in explaining complex issues to a mass market readership accustomed to the info-mentary style of knowledge transmission, in which serious issues are trivialized, sanitized and re-packaged for easy consumption. He also succeeds in capturing the attention in an engaging way by describing the context of the story in terms that will appeal to the average tourist with an interest in the background issues a visitor to the Vatican, Rome and the Italy of Galileo is inspired to discover.

As one reviewer commented, Rowland provides fascinating material for a casual after-dinner conversation about Galileo, faith and science. He has however missed an opportunity to paint a more complete and insightful picture of the global context of a story with an important and powerful message for us today. He has focused attention on the purely Western political, scientific and religious issues, and on the present at the expense of a greater understanding of the past. His treatment of the perennial ''science versus religion'' controversy that the subject of Galileo automatically precipitates is innovative and informative, but also disturbing.

What is so often ignored in this debate is the fact that science as a discrete academic discipline did not exist at the time of the Galileo controversy. The Europeans of the seventeenth century did not think about science and religion as Westerners do today. All of science was considered to be part of theology as it was in all non-Western countries until the last century. The Latin word for ''science'' is derived from *scientia,* meaning ''demonstrative knowledge of the essence of things'' – not reason. What we now call science was considered to be ''natural philosophy'' for many years after the Galileo affair. Galileo described himself as a ''natural philosopher'', not as a scientist. Natural philosophy was the study of ''the first causes of nature, change and motion''. It revolved around the issues of divine creation and therefore had implications for the interpretation of the Scriptures. The distinction is important.

The use of the word ''religion'' in this context is also problematic. Religion refers to dogma and practice. In the case of Galileo, these were not in dispute. It was theology, being the meaning of religious doctrines or practices that he was accused of perverting. Faith and religion are also not interchangeable words as Rowland has used them; faith being derived from the Latin word ''fides'' meaning fidelity, not belief.

By linking Galileo with the contemporary ''science versus religion'' debate as Wade Rowland does, we are directly linking an event – a perceived cause – with our perceptions of its effect. But, as Henri Bergson wrote in *Creative Evolution*, the present always contains the past: ''What is found in the effect was already in the cause''. ''Modern man'', the mathematician and originator of chaos theory, Henri Poincare observed ''has used cause-and-effect as ancient man used the gods; to give order to the Universe. This is not because it was the truest system, but because it was the most convenient''.

To understand the Galileo affair, we need to look through the lenses of a person living at the time, unshackled from our twenty-first century scientific worldview. As Complexity Theory teaches, no situation is ever the result of a single, or even a combination of factors in isolation. It is the particular mix of the factors at a particular point of time that produces the end result, which can prove to be beneficial, neutral or disadvantageous to many different

people at the same time, all of whom are engaged in their own mini-dramas. Our concepts of truth and reality are always value-laden, partial and situational.

The schism between what we now know as science and theology only took place after Galileo's trial. By ''laying the blame'' or attributing the glory to any one individual we are thinking in terms of competition and conflict and of winners and losers; in terms of either/or; using linear thinking in a way that directly contributes to our confusions on a raft of issues.

Galileo was just one casualty in the battle to protect the integrity of the Christian Scriptures that had been gaining momentum since the beginning of the Christian era and continues today, albeit it in a less aggressive form, in all Christian traditions.

The high-profile cleric, Pierre Abelard had incurred the wrath of The Inquisition in the twelfth century when he taught his students to question the scriptures in his book *Sic et Non*; Martin Luther was declared a heretic, sparking the sixteenth century Reformation when he nailed his Ninety-Five Theses to the door of the Wittenberg Church. Prominent theologians like Hans Kung, Edward Schillebeeckx and Leonardo Boff were censured during the papacy of the late Pope John Paul II. Many more Christian heretics have been named and shamed in Christianity's two thousand year history.

In the Islamic tradition, perceived defamations of sacred scriptural truths is still punishable by death, as Salman Rushdie discovered to his cost when he published his *Satanic Verses* in 1989. Individuals have been accused of different types and degrees of heresy in every era, not just by religious authorities but also by secular, political and academic authorities. The academic practice of peer review is as much a process of information control to ensure orthodoxy as any hearing by The Inquisition.

More important than Galileo's trial was its impact on his contemporary natural philosophers, principally Rene Descartes. Hearing of Galileo's condemnation for defending the Copernican system, Descartes suppressed the publication of his own work *Le Monde,* in which he had used similar arguments, and fled to Holland for safety. He later proposed that science should study the world of matter (res extensa) but leave the world of the mind (res cogitans) to the church. This ingenious solution to what was a major stumbling block to the creation of a revolution in scientific thinking contributed eventually to the equally misunderstood ''mind-body problem'' of Western philosophy.

Galileo had tried to solve the problem of separating natural philosophy from theology more than twenty years earlier, by making the point in his controversial *Letter to the Grand Duchess Christina of Tuscany*, (1615) replying to critics of his heliocentric theory who had accused him of declaring the Scriptures to be incorrect: ''For the Bible is not chained in every expression to conditions as strict as those which govern all physical effects; nor is God any less excellently revealed in Nature's actions than in the sacred statements of the Bible''.

God, Galileo was saying, keeps two sets of books: a book of nature and a book of scriptural revelation. If they seem to conflict, he argued, it is because our human understanding is limited, not because the Scriptures are wrong. We need to read both the Scriptures and the word of God written in nature to arrive at the truth. Faith and science are not in opposition. Both are ways of arriving at some concept of reality that fits with our sense of who we are. Science provides us with the facts; but it is faith, the will to believe, that gives us a sense of meaning and purpose.

Galileo was expressing an opinion that was becoming generally accepted by a new breed of inductive thinkers reacting against the Aristotelian form of deductive reasoning in use in Europe at the time. They were led by the English statesman and philosopher Frances Bacon (1561-1626). Bacon, a devout Protestant who had died before the Galileo scandal rocked Europe, wrote in his *Advancement of Learning* that when natural and divine philosophy were ''commixed together'' it could only lead to ''an heretical religion and an imaginary and fabulous natural philosophy'':

> Among the Greeks those who first suggested to men's untutored minds that thunderbolts and storms had natural causes were condemned for impiety .... In our own days discussions concerning nature have been subjected to even harsher constraint ... (Frances Bacon).

The scientists who followed Bacon were not atheists. Most were devout Christians; what we now call Fideists, who believed in a new form of ''faith-ism''. It was their quest to discover the laws of nature that led to the formal separation of natural philosophy and theology when the Royal Society was founded in London in the 1640s to discuss and apply Bacon's ideas, not principally the trial of Galileo. The Galileo issue merely created a sense of urgency and underscored the need for secrecy.

It was the concept that man can discover the mind of God in nature that Rowland cites as Galileo's ''mistake''. He writes: (p. 157)

> Scientists do not discover the laws of nature – they invent them . . . their observations are filtered through layers of subjective impression and social conditioning. Scientific ''facts'' about nature are not pre-existing truths, they are human constructs, the products of human minds.

His argument is valid in terms of the modern Western scientific worldview, but would have been considered nonsensical in the world of Galileo, just as it would still be in modern traditional indigenous societies where knowledge derived from nature has precedence over scientific knowledge. Many of our difficulties today stem from the fact that we have lost touch with nature. We no longer hear ''the heartbeat of the world'' that people in the seventeenth century took for granted as a part of everyday life.

The schism between science and theology achieved by the new scientists set the precedent for separating academic disciplines in a continuous process of reductionism that persists today. The specialization of discreet academic disciplines has delivered the scientific advances we now all enjoy, but it is has also fragmented our thinking. It has changed the way we see the world, how we educate, how we conduct research, how we evaluate arguments and how me measure – creating the dualistic nature of Western thinking that is proving so hard to change. It has led us into the practice of judging rather than understanding - of thinking lineally instead of appreciating the wonders of the whole *and* the complexities of the details.

The notable but neglected French economist Frederic Bastiat pointed out the folly of this trend in his paper of 1850 *Economic Harmonies*:

> I am not one of those who believe that a science has *inherently* its own natural and immutable boundaries. In the realm of ideas, as in the realm of material objects, everything is linked together, everything is connected; all truths merge into one another, and every science, to be complete, must embrace all others. It has been well said that for an infinite intelligence there would be only one single truth. It is only our human frailty, therefore, that reduces us to study a certain order of phenomena as though isolated, and the resulting classifications cannot avoid a certain arbitrariness.

Like Al Gore, Galileo was trying to find a way to reconcile the gap between the scientific evidence and mass-mediated popular culture. He was trying to find a way to appeal to people raised on an information diet of truths written in a different era for a different audience that they were either too lazy, or too scared, to question. He wrote for the people in Italian, rather than Latin as was customary, using simple words and clear diagrams to explain his points. His problem was the same problem scientists dealing with issues of global warming today are trying to deal with; the ignorance and intransigence of scientists, religious fundamentalists and educated members of the chattering classes with closed minds - content in their own worlds, unaware that what they consider to be knowledge is often just opinion, not fact.

''The trouble with people is not that they don't know but that they know so much that just ain't so'' the humorist Josh Billings quipped in the nineteenth century, re-phrasing the French philosopher Jean Jacques Rousseau quoted by Wade Rowland.

Modern science historians and economists have come to appreciate the truth Bastiat was expressing. The boundaries between disciplines, such as those between religion, art, science, history, culture and even mathematics and economics, are not fixed. The seeds of one are always contained in the other, each being reflected in and informing the other, transforming our understanding of the world and the contents of the disciplines themselves.

Truth is not immutable and knowledge is never static. They are both dynamic – evolving continuously as the hosts in which they are conceived and grow, the human being, evolves and progresses.

''Great scientific discoveries are like sunrises,'' the sociobiologist E. O. Wilson once said ''First they touch just the tips of a few peaks and steeples; then they illuminate the whole world''. Great art, inspiring literature and poetry, beautiful landscapes, great ideas and spiritual experiences are similarly transforming. They shake us into revelation and rip us from our default mode of seeing; rewiring our thinking and fitting us with a new sight – insight. We can never see the world in the same way again.

By this process of accumulated insights, we acquire knowledge in faltering steps, at some times advancing in one direction, at other times, in another. What is important is that we do make progress, not that one area of knowledge is superior or inferior to another. ''A clash of doctrines is not a disaster – it is an opportunity'' Alfred North Whitehead observed. Einstein once said: ''I assert that the cosmic religious experience is the strongest and the noblest driving force behind scientific research''.

This understanding was not part of the mindset of the members of The Inquisition in seventeenth century Europe, intent as they were on maintaining the status quo and blocking all change, despite the fact that the truth of an interconnected universe had informed many of the great artists and thinkers of the Renaissance, including Leonardo da Vinci. The concept of reconciling opposites came naturally to them.

Galileo was a devout Catholic and a mystic. It is inconceivable that a religious man, studying the heavens through a telescope for the first time, would not have been overawed and dramatically changed by what he saw to the point of frustration with people who literally would not open their eyes to see. He would have wanted to share his discoveries with everyone he met, like Archimedes running down the road shouting ''Eureka!'' (most probably a myth but one that makes a point); not purely for personal gain or self aggrandisement as some biographers, including Rowland, have suggested. He did this by holding demonstrations of his new telescope in many Italian cities, in the Vatican and in the headquarters of the Jesuit Order. The Pope had viewed the heavens through the new instrument many times and the Jesuit mathematicians and astronomers had established an observatory of their own, with the aid of Galileo.

Carl Sagan, a popular astronomer of the twentieth century and a man who was also able to communicate his passion to a non-scientific audience, expressed in his book of the 1990s, *Pale Blue Dot*, something of what Galileo must have felt when he discovered the complexity and beauty of the heavens:

> How is it that hardly any major religion has looked at science and concluded, ''This is better than we thought! The universe is much bigger than our prophets said, grander, more subtle, more elegant. God must be even greater than we dreamed.'' Instead they say, ''No, no, no! My god is a little god, and I want him to stay that way.''

The first sight of the heavens through one of Galileo's telescopes must have been both exhilarating and emotionally devastating in its impact on all of the people who clamored to see through them, in a way that we, in the technological age of the twenty-first century, as accustomed as we are to new and ever more fantastic discoveries – can barely imagine. It is only our jaded sensibilities that cause us to see the significance of the Galileo controversy as the mythmakers over the centuries have wanted us to see it – in the stark terms of a clash between religion and science.

But success comes at a price and innovation and enthusiasm is often unappreciated. Galileo had powerful supporters, including the Pope, Urban VIII, but he also had powerful enemies. An extraordinarily conservative group of University-based Aristotelian philosophers, dubbed ''The League of Pigeons'' by Galileo's friends, and led by a philosopher from his own University, the University of Padua, Lodovico delle Columbe, fought a sustained campaign against him for over 20 years. It was they – not the Church – who initially brought scripture into the debate. Galileo's opinions and discoveries were

characterized as being ''rash, dangerous for the faith, and designed to show cleverness rather than to aid philosophy.''

The debate between the Aristotelians and Copernicans became increasingly highly charged and damaging. The Aristotelians eventually won. In time, Galileo's credibility suffered. Although he claimed he did ''not desire in these matters to engage in dispute with anyone,'' he engaged in bitter verbal and written battles with his detractors, claiming that they were – ''condemning 'it' (his theory) without understanding it, weighing it, or so much as reading it.'' These battles were to prove to be his undoing.

The central theme of ''Galileo's Mistake'' is the speculation about the true reasons for the successful conviction of Galileo. He had been brought before the Inquisition in 1616, but was let off with a warning ''not to hold, teach, or defend'' the Copernican theory ''in any way whatever, either orally or in writing''. Why then did he disobey this injunction by writing his book, released in 1632, *Dialogue Concerning the Two Chief World Systems* in the full knowledge that the consequences of doing so could be as serious as death by burning at the stake, as they had been for a former priest and free-thinking heliocentrist, Giordano Bruno, just a few years previously? Was Galileo truly repentant when he recanted after his conviction, sincerely believing that he had been correctly accused and found guilty of disseminating heretical literature based on the Copernican hypothesis, as we have been led to believe – or was he merely a coward trying to save his own skin?

The truth remains a mystery. Wade Rowlands argues the case for the Church, faced as it was with unproven scientific speculation on all sides, in a new and refreshing way. But when we try to imagine how the participants in this great saga must have felt, a different picture emerges. The sense of wonder and awe that Galileo and others who had looked at the vast universe through one of his new telescopes must have felt can only have been life-changing. It is easy to imagine that Galileo was prepared to risk his life to share his new vision with the people and with the Church hierarchy, whatever the cost. He had good grounds for believing that his *Dialogue* would be accepted by the Church, as his previous book *The Assayer* had been in 1623 and was therefore confident that he would not be prosecuted. He had received clearance from the Catholic censors before it was published – but – crucially, he had not obeyed their instruction to state clearly that his theory was merely an ''hypothesis''.

The clash was between those who could ''see'', and those who ''would not see'' in both the religious and the scientific establishments. New knowledge imposes responsibility. When we have to accept that what we thought is not so, we have to accept our own fallibility and ''learned ignorance'' and act in new and unfamiliar ways. Most people fiercely resist change because they resist being changed and do not want to have to ''be'', believe or act differently.

The story of Galileo's clash with the church of his day is not just a European story of ''science versus religion'', or ''tradition versus innovation'', or the biography of a free-thinking individual oppressed by an all powerful and reactionary church. It is a dramatic saga about freedom of expression and the control of information and knowledge for political, material and religious ends in one of the first eras of globalization, when the knowledge transfer between East and West threatened to destabilize and undermine the power of the established church and academia.

It is a story about an event that has remained etched in the minds of generations of Westerners because it teaches us something about ourselves and our need for heroes and villains, immortalized in memorable myths. It is a drama that has been re-played countless times throughout human history in one form or another: a drama about the power of imagination and the courage of all of the visionaries who have helped us to see further by lighting a new way forward for us to follow.

Galileo was one of those rare figures from all walks of life who appear at turning points in history; men and women whose courage in fighting for intellectual, spiritual, civic or political freedom impresses much of the world, but who pay the price by exposing their ideas to ridicule by their contemporaries and by putting themselves in dangerous conflict with the authorities.

The Renaissance was a period of expanding horizons. The increasing use of the new printing presses was making an unprecedented amount of knowledge available to even the poorest members of society. The Pilgrim Fathers had sailed to a new life in America. By the 1600s, the missionary outreach, a pet project of Pope Urban VIII, was beginning to touch all continents. The people were hearing fantastic stories of new and exotic lands, not just in North America, but in Asia, South America, the Middle East and even Africa, told by the settlers in the New World, the traders and missionaries who traveled to the different countries, or worked with the indigenous people and who wrote letters back to their friends, their families and their Orders. The missions in India, China and Japan were facilitating lucrative new trading and diplomatic links with these countries. The world was opening up as never before.

The flow of knowledge and information went both ways. The newcomers from the West were introducing Western knowledge, inventions and products to the people in the countries they interacted with.

The missionaries were translating European scientific, mathematical and religious works into the local languages, discovering parallels between Christian truths and local religions in the search for an accommodation between them, a practice that the Portuguese authorities, the Dominican missionaries and The Inquisition, led by the Dominicans, disapproved of. The discovery of two divergent scientific and religious traditions was a culture shock for both sides. Galileo and the Pope were caught up in a hurricane of ideological change that this new ''Clash of Civilisations'' – had created. It was a clash that was beyond the control of either of them.

The exposure to Western culture was similarly destabilizing in the East and in the New World, where opposition to the newcomers was mounting. In the West, there was a renewed interest in the mystery traditions: magic, mysticism, and Hermeticism which led to the mass persecution of suspected witches, but also provided Johannes Kepler, Francis Bacon, Dante Alighieri and other natural philosophers with new insights and methodologies for exploration.

The new horizons made previous truths seem wrong or parochial. A new ''sense of self'' was developing as people came to see themselves as self-determining individuals, rather than as loyal and obedient followers of an impersonal and distant authority. Writers, like Michel de Montaigne, Thomas More, William Shakespeare, Christopher Marlow, and Francis Bacon fuelled their imaginations, drawing from a treasure chest of new ideas to increase the sense of relativity of each person's beliefs about himself or herself and the world in which each lived. In the midst of the horrors of the plagues and the religious wars, a sense of optimism existed as these writers sketched out their concepts of possible utopias and developed new and idealistic notions about political and religious freedom, the power of emotions, love and intuition.

The new breed of natural philosophers were meeting and communicating regularly, exchanging ideas and discoveries. Galileo was a member of such a group, the prestigious Lincean Academy, that included amongst its members the esteemed elderly savant Giambattista Della Porta, author of *The First Book of Natural Magik*. Francesco Barberini, the nephew of Urban VIII was also a member, as was the Pope himself for a time. Other groups of like-minded thinkers were forming all over Europe.

It is hardly surprising that a free-thinking and passionate academic like Galileo was swept up in the emotion of the times. His clash with the established Church is a classic management case-study of a well-intentioned change initiative (initiated by Galileo) that fails in the short-term for all of the same reasons that modern change initiatives most often fail; because the key players are all too human. They remain mutually ignorant or ill-informed about the big picture drama they are caught up in – wrapped up in their own concerns and blind-sighted by their own passions, prejudices and agendas, while failing to appreciate the extent of their own shortcomings and being unprepared to learn from their failures – too often with disastrous and far reaching unintended consequences. They fail because they continue

using the same methods that delivered success in the past when environmental conditions have changed.

Both sides in the Galileo controversy appear to have underestimated the power of the dramatic changes taking place globally and the strength of the opposition. The changes were undermining the metaphorical foundations of the world. It was a period of transformation that can be compared to the transition to a new world we are experiencing at the start of the twenty-first century. ''One can resist the invasion of an army but one cannot resist the invasion of ideas'' Victor Hugo pointed out when commenting on the French Revolution.

As is the case in many such instances of organizational failure, the established authority and the innovator become convinced of their own invincibility. Entrenched autocratic leaders surround themselves with ''yes men and women'' too afraid to challenge their authority, or they become detached from critical information sources.

There is certainly evidence that Pope Urban VIII was leaving much of the decision making to his nephews and was under increasing pressure to be seen to have punished Galileo for disobeying the injunction placed on him in 1616, for reasons that possibly had little to do with Galileo himself and more to do with the wider conflict in Europe and the East and the attacks on his own credibility and integrity that came to a head after his death.

The global situation had deteriorated significantly between Galileo's first trial in 1616 and the trial of 1633. Catholic missionaries were coming under increasing pressure from the local authorities in Japan and, a few decades later, in China. In both countries the missionaries were expelled because they were suspected of plotting to overthrow the Emperors to gain control of their countries. In China, the Jesuit missionaries were being challenged by the Dominicans and the Franciscans, who had arrived in 1633 but were expelled just four years later. Pope Urban VIII was a Jesuit and would have been compromised in these disputes.

In Europe, the Thirty Years War was raging. In India, the Mughul Emperor Shah Jahan was destroying Hindu temples and persecuting Hindus. The scientists in India, Persia and in China were challenging the Christian missionaries with science of their own. Aryabhata, the Indian astronomer, had developed a sophisticated elliptical heliocentric model of the planets in the fifth century. His work was translated into Latin and into Arabic and it is quite likely therefore that Copernicus used this work in the calculations that led to his heliocentric theory – a fact that would have undermined Western notions of superiority and the acceptance of the Christian scriptures. Islamic scholars never actually developed a heliocentric model of the universe, but they did criticize Ptolemy's model. They also developed sophisticated mathematics and medical practices that were superior to Western methods.

The truth about the real reasons for Galileo's trial for heresy will, in all probability, remain a mystery. But it may not be too far fetched to surmise that Galileo was persuaded to accept a lesser penalty, of house-arrest in comfortable circumstances rather than imprisonment or death, in return for his silence, because he was persuaded, as a loyal and faithful Catholic, that his theories jeopardized the missionary efforts abroad. By making an example of him, the Church hierarchy was able to effectively re-establish its control over the information flow and block the future dissemination of all Eastern science and philosophies. It succeeded in its efforts in the short term, but with consequences that still impact our thinking.

All of the parties in the Galileo affair lost in the long term. Galileo, as the change agent, suffered personally, but his attempt to draw attention to his theory exceeded beyond his expectations in the long term in ways he could not have anticipated and most probably would not have approved of. He became a hero and the poster- boy of the scientific revolution led, not by the Catholic Church as he had hoped, but by the Protestants.

The Catholic Church gained a victory over Galileo by silencing him in the short term but it was a pyrrhic victory. It won the information war but lost the opportunity to influence the development of science and ultimately, its foothold in the East, where the scandal of the affair was used against it to undermine its position. In terms of the larger game, convicting Galileo

for heresy was the losing shot played by the Catholic Church in one of the last battles of the Reformation that gave the moral ground to the Protestant opposition.

The Galileo affair was a tragic incident that inflicted damage to an ancient institution and to our faith in the truth of revelation. It has blinded us to the value of theology and morality in scientific thinking from which we are still struggling to recover.

Endnote

On October 31, 1992, Pope John Paul II formally declared that the church had erred in condemning Galileo. The commission set up to investigate the matter concluded that while seventeenth century theologians based their decision on the knowledge available to them at the time, they had wronged Galileo. They concluded that ''a tragic mutual incomprehension has been interpreted as the reflection of a fundamental opposition between science and faith''. Efforts to reconcile Catholic and Protestant thinking about Martin Luther are continuing. Pierre Abelard and Pierre Teilhard de Chardin, a twentieth century ''heretic'' are modern cult figures. The tide may be turning. We may at last be ''rediscovering our Gods'' as the French philosopher André Malraux predicted.

References

Rushdie, S. (1989), *The Satanic Verses*, Viking, London.

Sagan, C. (1994), *Pale Blue Dot*, Random House, New York, NY.

Further reading

catholic.net (2007), ''The Galileo affair'', available at: www.catholic.net

De Santillana, G. (1978), *The Crime of Galileo*, reprint edition, University Of Chicago Press, Chicago, IL (original publication 1951).

Fowler, M. (1996), ''Galileo and the telescope'', available at: http://galileo.phys.virginia.edu

Rowland, W. (2003), *Galileo's Mistake: The Archaeology of a Myth*, Thomas Allen Publishers, Toronto.

Sobel, D. (2000), *Galileo's Daughter: A Historical Memoir of Science, Faith, and Love*, New Ed edition, Fourth Estate, London.

The Columbia Encyclopedia (2001-2005), *The Columbia Encyclopedia*, sixth ed., Columbia University Press, New York, NY.

Vatican library (2007), available at: www.vatican.va/library_archives/vat_library

Whitehead, A.N. (1925), ''Religion and science'', *Atlantic Monthly*, August.

Wilson, F.L. (2007), ''The history of science'', Rochester Institute of Technology, available at: www.rit.edu

Corresponding author

Cherryl Martin can be contacted at: cherryl@cmartin.co.uk