**The Acceptance of Correct Ideas in Science**

Should the question be asked why my books caused such great enmity and agitation (several writers have compared it with the violent natural events I described), the answer should not be simplified into the formula—“because the theories argued in them run counter to the established views.” Such an explanation requires elaboration within a larger historical perspective.

Fundamentally, it has been true that any new concept that carried seeds of truth and dispensed with many accepted tenets was apt to provoke some opposition. But this is not all. There must be deeper reasons for the extraordinary outburst on the part of the scientific community that greeted and pursued my works. This manifested itself in immense efforts to make me appear to be unscientific or unscholarly, an outcast, and my work of no worth.

The cases of Galileo, Darwin, and Pasteur were often brought into comparison by many reviewers and numerous correspondents. But. without losing historical perspective, the attacks in these cases were far less vituperative, far more mixed with praise, than the attacks made on the substance of *Worlds in Collision* and *Earth in Upheaval,* and personally upon their author.

Galileo was received in many honorary assemblies with great pomp, even by the Pope himself: the initial unwillingness to believe what Galileo saw through the telescope soon turned into great admiration for his achievement. A case in point is Clavius, author of the Gregorian calendar reform. At first a vehement opponent of Galileo, Christopher Clavius, with other Jesuits of the Roman College, repeated Galileo’s observations in 1611, a year after Galileo published his *Sidereus Nuncius.* “John Adam Schall von Bell, later to be the first European director of the Chinese Bureau of Astronomy, was present as a young man in the hall of the Roman College in May 1611 when Galileo received a triumphant welcome from Clavius and his mathematicians after their confirmation of his discoveries.”[(1)](http://www.varchive.org/ce/accept.htm#f_1) It was the scorn to which Galileo exposed the Pope, putting his views on cosmology into the mouth of Simplicius, that caused Galileo’s brush with the Inquisition.

From the beginning, Darwin had many followers among scientists; and actually not he as much as his opponents were the targets of emotionally charged abuse. It was Huxley, not Bishop Wilberforce—the main opponent of Darwin—who in their famous encounter lost his temper and used insulting language.

Pasteur had envious and disbelieving colleagues, and some scientists in exalted positions, like Virchow, did not hurry to his side; yet Lord Lister did so. Before long Pasteur’s name rang throughout Europe, and people traveled to his laboratory — this despite the fact that Pasteur had no formal medical training, as Darwin had no formal training in natural history. Darwin’s only degree was that of Bachelor of Theology.

Galileo, Darwin and Pasteur, the standard examples of the persecution to which innovators are subjected, did not experience nearly as much abuse, either in sheer quantity (though the comparative scarcity of the press in the seventeenth and nineteenth centuries needs to be taken into account), or in its intensity, as became the lot of the author of *Worlds in Collision.*

In the history of science only the case of Copernicus caused a comparable objection and agitation. But Copernicus spared himself the abuse by the intentional postponement of the publication of his book until his very death. In his last days he was persuaded by his only pupil. Rheticus, to permit him to publish his work, *De Revolutionibus,* which he dedicated to Pope Paul III. On May 24, 1543, a few hours before Copernicus died, the first copy was put in his hands. In it he said:

“I can easily conceive . . . that as soon as some people learn that in this book which I have written concerning the revolutions of the heavenly bodies, I ascribe certain motions to the Earth, they will cry out at once that I and my theory should be rejected. Accordingly, when I considered in my own mind how absurd a performance it might seem to those who know that the judgement of many centuries has approved the view that the Earth remains fixed as center in the midst of heaven, if I should on the contrary assert that the Earth moves — when I considered this carefully, the contempt which I had to fear because of the novelty and apparent absurdity of my view, nearly induced me to abandon the work I had begun. How did it occur to me to venture, contrary to the accepted view of the mathematicians, and well-nigh contrary to common sense, to form any conception of any terrestrial motion whatsoever?”

The only opposition Copernicus experienced in his lifetime was not from the Catholic Church, but from Martin Luther who, having heard of the theory of the Canon of Frauenburg, spoke against the “new astrologer who wanted to prove that the earth was moving and revolving rather than the heaven and the firmament, sun and moon. . . . This fool wants to turn the whole area of astronomy upside down. But as the Holy Scripture testifies, Joshua ordered the sun to stand still, not the earth!”

The Copernican theory was, as its author saw in advance, silenced for almost a hundred years’ scientists were afraid to study or to teach it the only exception being Giordano Bruno. After nine months in the dungeon of the Venetian Inquisition and seven years in the cell of the Roman Inquisition, Bruno was burned at the stake in Rome for his denial of the Immaculate Conception—a theological heresy—and for his teaching of the Copernican theory, which he extended by claiming the plurality of worlds. For Bruno, the fixed stars were not lights attached to an enormous sphere that bounded the universe, as Copernicus thought them to be. They were suns, like our Sun, encircled by planets, and some of these he believed were populated by intelligent beings. “You are perchance more afraid to pronounce your judgement,” Bruno said at the last hearing of the tribunal, “than I am to hear it.” On February 17, 1600, from the pile of faggots kindled in Campo dei Fiori in Rome, he was sent to the Inferno by the Inquisition.

These were no longer the dark Middle Ages. It was an illustrious time. The same year, 1600, Shakespeare wrote his *Hamlet,* Bacon had published his *Essays* in 1597, and both of them remained steadfast adherents of the Ptolemaic, geocentric system of the world, almost one hundred years after Copernicus. Bruno had spent his time and zeal in England, having made only one convert—William Gilbert, who published his great opus, *De Magnete,* in the same 1600. But when I said that Bruno was despised and pursued by both the Church and by scientists, I had in my mind that Galileo, whose later (1633) detention by the Inquisition was of a much shorter duration, in no book and in no letter of his enormous extant correspondence mentioned Bruno. Johannes Kepler, whose great discoveries became known as Kepler’s Laws, himself wrote of Bruno’s concept of the plurality of worlds as that “horrible theory.”

It was this that Bruno feared most: and though Bruno’s ideas are acknowledged to have been the greatest influence on Spinoza’s (17th Century) pantheism, he otherwise was all but forgotten for fully two hundred years and rediscovered only in the nineteenth century. God’s mills grind slowly. In August of 1597, Galileo wrote to Kepler:

“Many years ago I became a convert to the opinions of Copernicus, and by that theory have succeeded in fully explaining many phenomena which on the contrary hypothesis are altogether inexplicable. I have drawn up many arguments and confutations of the opposite opinions, which however I have not hitherto dared to publish, fearful of meeting the same fate as our master Copernicus who, although he has earned for himself immortal fame amongst a few, yet amongst the greater number appears as only worthy of hooting and derision: so great is the number of fools.”

Galileo became bolder only when, having observed Jupiter and its satellites through his telescope, he recognized a structure similar to that described by Copernicus: a sun encircled by planets. But his open defense of the Copernican theory caused a storm of opposition.

What was so unacceptable in the heliocentric system? Most generally it threatened humankind’s psychological need for the feeling of security, itself most probably based on a deep hidden insecurity. A moving Earth is a less secure place than an unmoveable one. Additionally, mankind was denied the central role in the universe. This not only was injurious to his ego but was also interpreted to be in conflict with the tenets of the Christian Church. Did Jesus come just to a very secondary planet, one of many? But more than these considerations, the awakened feeling of insecurity was the basis of the great anguish that greeted the belated announcement of the Copernican theory.

Man as a species needs security from the elements, from the beasts; and not until he aggregated into communities and built shelters and walls could he feel himself protected from the outrages of nature and from the predatory animals. But it was not the daily vicissitudes of the ever-lurking predators that put such deep-seated fear into his soul: it was the great derailment of this planet on its travels that left its deepest impression on him; and as the deepest traumas are put in oblivion in the soul of an individual, so also is the case with humankind.

It was very unpleasant, therefore, to find out that the Earth, the whole Earth under our feet, moves. (How spontaneously and instinctively correct when the entire population of a city runs outside in panic at the first rumblings of an earthquake.) Later it was also very unpleasant to be told by the biologists that animal species are not immutable, that there is change and evolution in the animal kingdom, and that these natural mechanisms had produced humankind itself. Still more recently, it was markedly unpleasant to learn from psychoanalysis that man’s motives are not always those that he thinks; that in his instincts he is much more primitive and animal than he wishes to admit: and that consciousness thus has understructures of an unconscious mind, and that these are quaking and uncontrollable domains, ruling over his conscious acts and motives.

But nothing of this compares with the insecurity engendered (especially if one is a scientist) when it comes to understanding that the planet on which we travel has been involved in cosmic accidents: even more if it seems that the plan of propagation and evolution has made the role of such accidents of collision not incidental but a precondition of evolutionary progress and destruction alike.

This is, in my view, the main cause of the emotional outbursts that have followed *Worlds in Collision.* The idea of a great fear living in man since the days of the great catastrophes presented itself early to me I was a student of psychology before I became a student of history, natural history, and folklore: and I was aware that there is some “blocking,” in the psychoanalytic sense, to see obvious things. Why have students of mythology failed to discover why the gods of the pantheons of all ancient races should have been identified with the planets? Why do the traditions of all races speak of celestial *theomachy,* of great natural perturbations, with the Sun, stars, and meteors taking part? Or, why do modern students of religion not wonder at the grandiose natural events described in the holy books and the concepts ofeschatology so prominent in the Gospels and the Koran? Why do students of geology strain themselves to explain, or explain away, catastrophically-formed phenomena they observe on the bottoms of the seas, in mountain ridges, in great fields of lava, and great deserts?

I have called this psychological phenomenon *collective amnesia.* and I have explained the term elsewhere: it is not that we have no historical evidence: it is rather the inability to read the texts as they are—Mars for Mars, Jupiter for Jupiter, fire for fire, hurricane for hurricane, and deluge for deluge.

To elaborate on this subject and to show how the unconscious mind works in all areas of our activities, even in our many sporadic wars, I have written *Mankind in Amnesia.* If Jung was right in his concept of a collective unconscious mind, then its probing must reveal the persistent racial memories of great catastrophes of the past when the sea, the sky, and the earth competed in destruction—for we are “survivors of survivors.”

Are there no other reasons for the outcry and concerted opposition to the reconstruction offered in *Worlds in Collision?* True, most scholars have a vested interest in accepted theories. There is also a psychological urge to reject anything contrary to what we have learned.

But these are additional reasons; vested interests and resistance to change one’s thinking are both secondary to the great and primary reason: the fear of the repetition of the events, grown in the racial memory of the survivors of these crises, when the Earth was carried to the brink of destruction. It is this hidden fear which is behind the scientists’ vehement denial of the available evidence for global catastrophes in historical times. The same fear manifests itself in many forms of irrational behavior—directed, above all, against *anyone* whose findings threaten to bring the archaic trauma into the open.

 **References**

1. Joseph Needham and Wang Ling, *Science and Civilization in China,* Vol. Ill (1959), p. 444.