

William James

Pragmatism: "The Present Dilemma in Philosophy" (1907) [excerpts]

[1] In the preface to that admirable collection of essays of his called 'Heretics,' Mr. [G. K.] Chesterton writes these words: "There are some people—and I am one of them—who think that the most practical and important thing about a man is still his view of the universe. We think that for a landlady considering a lodger, it is important to know his income, but still more important to know his philosophy. We think that for a general about to fight an enemy, it is important to know the enemy's numbers, but still more important to know the enemy's philosophy. We think the question is not whether the theory of the cosmos affects matters, but whether, in the long run, anything else affects them."

I think with Mr. Chesterton in this matter. I know that you, ladies and gentlemen, have a philosophy, each and all of you, and that the most interesting and important thing about you is the way in which it determines the perspective in your several worlds. You know the same of me. And yet I confess to a certain tremor at the audacity of the enterprise which I am about to begin. For the philosophy which is so important in each of us is not a technical matter; it is our more or less dumb sense of what life honestly and deeply means. It is only partly got from books; it is our individual way of just seeing and feeling the total push and pressure of the cosmos. I have no right to assume that many of you are students of the cosmos in the class-room sense, yet here I stand desirous of interesting you in a philosophy which to no small extent has to be technically treated. I wish to fill you with sympathy with a contemporaneous tendency in which I profoundly believe, and yet I have to talk like a professor to you who are not students. Whatever universe a professor believes in must at any rate be a universe that lends itself to lengthy discourse. A universe definable in two sentences is something for which the professorial intellect has no use. No faith in anything of that cheap kind! I have heard friends and colleagues try to popularize philosophy in this very hall, but they soon grew dry, and then technical, and the results were only partially encouraging. So my enterprise is a bold one. The founder of pragmatism himself recently gave a course of lectures at the Lowell Institute with that very word in its title—flashes of brilliant light relieved against Cimmerian darkness! None of us, I fancy, understood ALL that he said—yet here I stand, making a very similar venture.

[2] I risk it because the very lectures I speak of DREW—they brought good audiences. There is, it must be confessed, a curious fascination in hearing deep things talked about, even tho neither we nor the disputants understand them. We get the problematic thrill, we feel the presence of the vastness. Let a controversy begin in a smoking-room anywhere, about free-will or God's omniscience, or good and evil, and see how everyone in the place pricks up his ears. Philosophy's results concern us all most vitally, and philosophy's queerest arguments tickle agreeably our sense of subtlety and ingenuity.

Believing in philosophy myself devoutly, and believing also that a kind of new dawn is breaking upon us philosophers, I feel impelled, *per fas aut nefas* [whether it be right or wrong], to try to impart to you some news of the situation.

Philosophy is at once the most sublime and the most trivial of human pursuits. It works in the minutest crannies and it opens out the widest vistas. It 'bakes no bread,' as has been said, but it can inspire our souls with courage; and repugnant as its manners, its doubting and challenging, its quibbling and dialectics, often are to common people, no one of us can get along without the far-flashing beams of light it sends over the world's perspectives. These illuminations at least, and the contrast-effects of darkness and mystery that accompany them, give to what it says an interest that is much more than professional.

[3] The history of philosophy is to a great extent that of a certain clash of human temperaments. Undignified as such a treatment may seem to some of my colleagues, I shall have to take account of this clash and explain a good many of the divergencies of philosophers by it. Of whatever temperament a professional philosopher is, he tries when philosophizing to sink the fact of his temperament. Temperament is no conventionally recognized reason, so he urges impersonal reasons only for his conclusions. Yet his temperament really gives him a stronger bias than any of his more strictly objective premises. It loads the evidence for him one way or the other, making for a more sentimental or a more hard-hearted view of the universe, just as this fact or that principle would. He trusts his temperament. Wanting a universe that suits it, he believes in any representation of the universe that does suit it. He feels men of opposite temper to be out of key with the world's character, and in his heart considers them incompetent and 'not in it,' in the philosophic business, even tho they may far excel him in dialectical ability . . .

[4] I will write two traits down in two columns. I think you will practically recognize the two types of mental make-up that I mean if I head the columns by the titles 'tender-minded' and 'tough-minded' respectively.

The Tender-Minded

Rationalistic (going by 'principles'),
Intellectualistic,
Idealistic,
Optimistic,
Religious,
Free-willist,
Monistic,
Dogmatical.

The Tough-Minded

Empiricist (going by 'facts'),
Sensationalistic,
Materialistic,
Pessimistic,
Irreligious,
Fatalistic,
Pluralistic,
Sceptical.

[5] . . . For a hundred and fifty years past the progress of science has seemed to mean the enlargement of the material universe and the diminution of man's importance. The result is what one may call the growth of naturalistic or positivistic feeling. Man is no law-giver to nature, he is an absorber. She it is who stands firm; he it is who must accommodate himself. Let him record truth, inhuman tho it be, and submit to it! The romantic spontaneity and courage are gone, the vision is materialistic and depressing. Ideals appear as inert by-products of physiology; what is higher is explained by what is lower and treated forever as a case of 'nothing but'—nothing but something else of a quite inferior sort. You get, in short, a materialistic universe, in which only the tough-minded find themselves congenially at home . . .

[6] It is at this point that my own solution begins to appear. I offer the oddly-named thing pragmatism as a philosophy that can satisfy both kinds of demand. It can remain religious like the rationalisms, but at the same time, like the empiricisms, it can preserve the richest intimacy with facts. I hope I may be able to leave many of you with as favorable an opinion of it as I preserve myself. Yet, as I am near the end of my hour, I will not introduce pragmatism bodily now. I will begin with it on the stroke of the clock next time. I prefer at the present moment to return a little on what I have said.

If any of you here are professional philosophers, and some of you I know to be such, you will doubtless have felt my discourse so far to have been crude in an unpardonable, nay, in an almost incredible degree. Tender-minded and tough-minded, what a barbaric disjunction! And, in general, when philosophy is all compacted of delicate intellectualities and subtleties and scrupulosities, and when every possible sort of combination and transition obtains within its bounds, what a brutal caricature and reduction of highest things to the lowest possible expression is it to represent its field of conflict as a sort of rough-and-tumble fight between two hostile temperaments! What a childishly external view!

[7] And again, how stupid it is to treat the abstractness of rationalist systems as a crime, and to damn them because they offer themselves as sanctuaries and places of escape, rather than as prolongations of the world of facts. Are not all our theories just remedies and places of escape? And, if philosophy is to be religious, how can she be anything else than a place of escape from the crassness of reality's surface? What better thing can she do than raise us out of our animal senses and show us another and a nobler home for our minds in that great framework of ideal principles subtending all reality, which the intellect divines? How can principles and general views ever be anything but abstract outlines? Was Cologne cathedral built without an architect's plan on paper? Is refinement in itself an abomination? Is concrete rudeness the only thing that's true?

Believe me, I feel the full force of the indictment. The picture I have given is indeed monstrously over-simplified and rude. But like all abstractions, it will prove to have its use. If philosophers can treat the life of the universe abstractly, they must not complain of an abstract treatment of the life of philosophy itself. In point of fact the picture I have given is, however coarse and sketchy, literally true. Temperaments with their cravings and refusals do determine men in their philosophies, and always will. The details of systems may be reasoned out piecemeal, and when the student is working at a system, he may often forget the forest for the single tree. But when the labor is accomplished, the mind always performs its big summarizing act, and the system forthwith stands over against one like a living thing, with that strange simple note of individuality which haunts our memory, like the wraith of the man, when a friend or enemy of ours is dead.

[8] Not only Walt Whitman could write “who touches this book touches a man.” The books of all the great philosophers are like so many men. Our sense of an essential personal flavor in each one of them, typical but indescribable, is the finest fruit of our own accomplished philosophic education. What the system pretends to be is a picture of the great universe of God. What it is—and oh so flagrantly!—is the revelation of how intensely odd the personal flavor of some fellow creature is. Once reduced to these terms (and all our philosophies get reduced to them in minds made critical by learning) our commerce with the systems reverts to the informal, to the instinctive human reaction of satisfaction or dislike. We grow as peremptory in our rejection or admission, as when a person presents himself as a candidate for our favor; our verdicts are couched in as simple adjectives of praise or dispraise. We measure the total character of the universe as we feel it, against the flavor of the philosophy proffered us, and one word is enough . . .

How did the Copernican revolution contribute to the emergence of a scientific world-view?

By Roy Hornsby

<http://royby.com/philosophy/pages/copernicus.html>

[1] In medieval Europe it was generally accepted that the Earth lay at the centre of a finite universe and that the sun, planets and stars orbited around it. The framework for this astronomy was set by Aristotle (384 - 322 BC) in the fourth century BC while in the second century AD Ptolemy (c. 100 - 170 AD) devised a detailed yet different geocentric astronomical system.

During the early part of the sixteenth century, Nicolaus Copernicus (1473 - 1543) developed the first heliocentric theory of the universe which he presented in *'De Revolutionibus Orbium Coelestium Libri Sex'* (Six Books on the Revolution of the Celestial Orbs). The Copernican astronomy involved a moving Earth, which challenged the Aristotelian and Ptolemaic systems but by the time the Copernican view had been substantiated, the Aristotelian world-view had been replaced by the Newtonian theories of inertia, gravitation and motion.

The purpose of this paper is to examine how the theories of Copernicus contributed to the emergence of a scientific world-view, a view that encompassed a paradigmatic shift in world-view orientation from the medieval explanations of nature. Before the impact of the work of Copernicus can be fully appreciated however, it is necessary to have an understanding of the historical and social conditions that prevailed at that time.

[2] The medieval schema of the universe was geocentric. That is, the Earth remained stationary at the centre of the universe while the sun, the planets and all of the stars revolved around it. However, geocentrism had been under attack. Around 1375 The Occamists, particularly in Paris had been busy with a critical philosophy and forward-looking scientific investigations. Despite retaining some of the teleological elements of Aristotelian physics, Buridan (c. 1295 - 1358) had developed a concept of inertia and of gravity as uniformly accelerated motion. Nicholas of Oresme invented the idea of analytic geometry, discovered the formula for uniformly accelerated motion and argued for the rotation of the Earth.

Furthermore, Nicholas of Cusa (1401 - 1464) was associated with the doctrine of the 'concordance of contraries', an attack on the Aristotelian law of non-contradiction and had been willing to entertain the idea that the Earth might be in motion. In fact it has been suggested that Copernicus owed to Cusa his view that a sphere set in empty space would begin to turn without needing anything to move it. Despite these pockets of revolutionary thinking, medieval philosophy remained locked in pantheistic mysticism. Philosophy of the time was subordinate to Christian theology and limited by subservience to dogma. The reverence and respect displayed to authorities of philosophy and theology that characterized this thought was called Scholasticism.

[3] Scholastics sought not to learn new facts, but to integrate the knowledge already acquired separately by Greek reasoning and Christian revelation. Furthermore, they believed in harmony between faith and reason. Because the scholastics believed that revelation was the direct teaching of God, it possessed for them a higher degree of truth and certitude than did natural reason. Throughout the scholastic period, philosophy was called the servant of theology, not only because the truth of philosophy was subordinated to that of theology, but also because the theologian used philosophy to understand and explain the revelation. This concern is one of the most characteristic differences between Scholasticism and modern thought since the Renaissance.

Scholastics applied the requirements for scientific demonstration as first specified in Aristotle's *'Organon'* much more rigorously than previous philosophers had done. These requirements were so strict that Aristotle himself was rarely able to apply them fully beyond the realms of mathematics. It was this trend that finally led to the loss of confidence in natural human reason and philosophy that is characteristic of the early Renaissance and of the first Protestant religious reformers, such as Martin Luther.

The Christian church, still reeling from the effects of both the schism of Eastern and Western churches (1054) and of the rival Popes (1378 - 1417) found itself facing an intensified call for reform that eventually erupted in the Protestant Reformation. Humanism, the revival of classical learning and speculative inquiry, displaced Scholasticism in Italy during the early Renaissance of the 15th Century and quickly spread to become the principle philosophy of Western Europe. This deprived church leaders of the monopoly on learning that they had previously held.

[4] Martin Luther (1483 - 1546) initiated the Protestant revolution in Germany in 1517 when he published his 95 theses challenging the theory and practice of indulgences. The reform became very popular with the people and Germany became sharply divided along religious and economic lines. The reformation spread throughout Europe and led to the Peasants War (1524 - 1526).

Not until 1534 when Paul III became pope did the church meet the challenge of the Protestants. Paul III, like many of his successors, did not hesitate to use both diplomatic and military measures against the Protestants. The Counter Reformation movement sought to revitalise the Roman Catholic Church. Subsequently, the Index of Forbidden Books and a new Inquisition were instituted about 1542.

Astronomers also were groping for reform at the time of the birth of Copernicus. By the time that Copernicus had finished his preliminary training in astronomy, his teachers had begun to realise that although an intensive study of Ptolemy's *'Almagest'* was a necessary pre-requisite to further study, to know only Ptolemy was not going to be sufficient to rejuvenate astronomy. Indeed, some astronomers held that the Ptolemaic system was so cumbersome and inaccurate that it could not be true of nature. Copernicus himself eventually wrote in the preface to *'De Revolutionibus'* that the astronomical tradition he had inherited had created only a monster. Further to this Thomas Kuhn stated, in *The Structure of Scientific Revolutions*,

"By the early sixteenth century an increasing number of Europe's best astronomers were recognising that the astronomical paradigm was failing in application to its own traditional problems. That recognition was prerequisite to Copernicus' rejection of the Ptolemaic paradigm and his search for a new one."

[5] Copernicus however, did not seem to have a revolutionary attitude and upon rejection of the Ptolemaic system he examined again the earlier Greek astronomy. The humanist principle that all knowledge must lie with the ancients still appeared viable. Copernicus attempted nothing that others had not tried before because many astronomers had used the ancients to refute Ptolemy, however Copernicus alone chose the Pythagorean system which was to have profound revolutionary implications.

The historical evidence presented thus far suggests that Western Europe was in a state of several crises when Copernicus entered into the controversy and was ripe for a revolution of one type or another. However, Copernicus kept his work in abeyance for over thirty years and without the encouragement of George Rheticus (1514 - 1576) it is debatable whether his works would have been published at all. At this point it is appropriate to note that Copernicus was a canon of the Roman Catholic Church and had been called upon by Pope Leo X to reform the calendar.

The church was anxious that religious festivals be accorded their proper places in time. It is ironic that the Catholic Church was involved in the instigation of a reform that would eventually lead to erosion of their power over humanity. It is doubly so that it was done with the first hand assistance of two Protestants.

[6] Traditionally, Copernicus saw his finished work only on his deathbed in 1543. As mentioned previously in this paper it is inappropriate to suggest that the publication of Copernicus's great work shook any foundation of European thought immediately.

A generation after his death the period of crucial transition commenced and the controversy over the correctness of the Ptolemaic or the Copernican tenet became intense.

Almost one hundred and fifty years would pass before a theory of the universe that would permit explanation of the movement of the Earth and other planets was presented. The influence of Copernicus was indeed important but it resulted not so much from his system of the skies but more from the stimulus that he gave to men who in reality were producing something very different.

Kuhn discusses paradigm-induced changes in scientific perceptions during the first half century after Copernicus's new paradigm was proposed. He states:

"The very ease and rapidity with which astronomers saw new things when looking at old objects with old instruments may make us wish to say that, after Copernicus, astronomers lived in a different world. In any case, their research responded as though that were the case."

[7] In Kuhn's *The Copernican Revolution* Copernicus is presented as a highly proficient mathematical astronomer whose very narrow mindedness outside of his chosen domain blinded him to the destructive consequences that his technical reform of astronomy entailed for the entire traditional world-view.

Kuhn's point is important, for the heliocentric theories of Copernicus replaced the geocentric view of the cosmos that further threatened the authority of the church. No longer was humanity at the centre of the universe, about which all else revolved, but rather humanity was but one small part of a much larger system in constant movement. With the importance of humanity being decentred, people began to question more than that which faith held in high regard. This resulted in original and creative thought beginning to develop outside of the revered institutions of education, and what emerged were fresh original minds, aching to be freed from the shackles of traditional thought. The geographical discoveries, the opening up of fresh sources of wealth and the questioning of the church, heralded a new era.

Most Renaissance scholars felt confident in tracing human history back in a continuous pedigree to Adam, the first human allowing man to retain his divinely fixed place in time and space. Finally, owing to a succession of geniuses, Copernican astronomy assimilated in the seventeenth century. This assimilation resulted in the displacement of the Earth, and man upon it. Rather than being central to the universe, the Earth and mankind became insignificant elements in an infinite universe.

[8] Some scholars deliberate as to why the 14th century cosmological speculations failed to bring about a Scientific Revolution in the way that Copernicus's astronomical reform was able to do. One view holds that "Saving the phenomena became the predominant attitude. The thing to do was to think up clever imaginations of how things might be rather than embark upon a relentless investigation of reality."

Others argue that the physical realists of the 13th century failed to produce early modern science because of their lack of confidence of the human mind to penetrate nature. Copernicus succeeded because his work made possible for the first time "a potent union of new ideas that would challenge the traditional physics and cosmology....with the conviction, even if naive, that knowledge of physical reality was fully attainable."

Apart from a few eminent mathematicians like Rheticus and intellectual radicals like Bruno, nobody was bold enough to champion the work of Copernicus. It was the genius of Johannes Kepler (1571 - 1630) who seized upon it in the late 1580's. However, the person who contributed most significantly to the defence of the Copernican system was Galileo Galilei (1564 - 1642). He achieved this in two ways; first, he used the telescope to observe the heavens and transformed pure Copernican theory to theory substantiated through observational data. Second, he devised the beginnings of new mechanics and laid some foundations for Newtonian mechanics that would replace Aristotle's.

[9] The theory that Giordano Bruno (1548 - 1600) developed from the Copernican system was that the universe forms a system of countless worlds, each of which moves around its own sun. This governs each world that leads its own proper life, emerging from a chaotic condition to a clear and definite formation and again yields to the destiny of dissolution.

From the significance of the Copernican theory the 'unlimitedness' of space and time gained a clearer form and ultimately the proven hypothesis of the motion of the Earth about the Sun could furnish a rational basis for the completely new view of man's position in the universe. The anthropocentric idea which had ruled the Middle Ages became incoherent and man, as well as the Earth, ceased to be regarded as the centre of the universe and center of the world recognizes this.

The conception of a planetary Earth was the first successful break with a constitutive element of the ancient world view. Though intended solely as an astronomical reform, it had destructive consequences which could be resolved only within a new fabric of thought. Copernicus himself did not supply that fabric; his own conception of the universe was closer to Aristotle's than to Newton's. But the new problems and suggestions that derived from his innovation are the most prominent landmarks in the development of the new universe which that innovation had itself called forth.

[10] It is not within the scope of this paper to fully examine the far reaching implications upon science and indeed mankind that have resulted from the work of Copernicus. Through the evidence presented thus far it is apparent that the mathematical reform of astronomy initiated by him was a significant intellectual event. Subsequently it set in motion a preparatory movement in astronomical and physical thought which gradually expanded until it erupted in what is now referred to as the Scientific Revolution.

His planetary theories profoundly effected man's relation to God and the universe and further, were catalytic to the transition from a medieval to a modern Western society. The Copernican theory created tremendous controversies in religion, philosophy and social theory which have set the tenor of the modern mind.

In conclusion, the work of Copernicus not only transformed mankind's conception of the universe but it has been markedly influential in the evolution of science and rational thought as we know it today.