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Question: "In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch." (Einstein and Infeld, "The Rise of the Mechanical View," FYP Handbook 89). Discuss.

The archetypal scientist and modern poster child of scientific inquiry, Albert Einstein, was actually conflicted about the grounding notion of Western science: that there is an objective truth. Einstein wrote a myriad of essays exploring his personal life in relation to the complexities of the Western scientific tradition. This paper examines Einstein's "Autobiographical Notes," his essay on "The Rise of the Mechanical View," as well his examination of the "Principles of Research." Together, these texts provide the grounds for a multi-faceted synthesis of Einstein's worldview. In his "Autobiographical Notes," Einstein recounts his own personal story with respect to the scientific world. In "The Rise of the Mechanical View," Einstein describes the uncertainty of the scientific method of guessing and checking, using the metaphor of a person examining a wristwatch from the outside to describe how a scientist is able to see the natural world. In "Principles of Research," written in honor of his friend and fellow physicist, Max Planck, Einstein builds upon the Nietzschean principle that science is a re-branded religion. Being a system that seeks meaning beyond images – or

generally, the physical world as we experience it – science, in Einstein's view, relies on the existence of a deeper metaphysical truth. In reckoning with a tradition built on a false notion of objectivity, as well as trying to be a practical force in understanding the world, Einstein's writings demonstrate that being a philosophically informed scientist means being engaged in an ongoing struggle.

Einstein describes science as increasingly fragmented and tragically self-confirming: refuting the common conception that science presents humanity with a unified and objective way worldview. In his "Autobiographical Notes," Einstein reflects upon his attempt at choosing a specific field to pursue, observing, "consequently I saw myself in the position of Buridan's ass which was unable to decide upon any specific bundle of hay." (Einstein, 83). His difficulty in choosing a field of study as a passionate young scholar suggests a lack of unity between the different studies, wherein each field fails to present a complete account of the universe, leaving him unsatisfied with each option. If that is the case, why could he not combine fields, one may ask. This response, although seemingly reasonable, is problematic because it fails to see the reason why there are different fields in the first place: they each operate with distinct and often conflicting methodologies.

Einstein harshly calls into question the popular scientist's claim of being wholly different from the church. Western scientists passionately attempt to distinguish themselves from religion, despite the two traditions' similarly self-fulfilling natures. In Einstein's "Principles of Research," he literally describes science as a religion, opening with, "In the temple of science there are many mansions […and] many take to science out of a joyful sense of superior intellectual power; science is their own special sport to which they look for vivid experience and

the satisfaction of ambition." (Einstein, 91) By equating key parts of the scientific discipline to those of a religion, for example likening laboratories to temples, it is impossible for the reader's mind not to wander, exploring the many connections between the two traditions. However, this comparison only serves to de-legitimize science's objectivity to his audience if they do not respect the objectivity of the church. Einstein ensures that they do not, in his "Autobiographical Notes," wherein he describes his childhood intellectual exploration, "through the reading of popular scientific books I soon realized that much of the stories of the Bible could not be true." (Einstein, 78) This frank statement asserts both his – even as a *child* – and popular science's authority against the believability of religious narratives about the world. In his passage describing the 'temple of science,' Einstein is also subtly attacking some of science's other claims to authority by calling it a 'sport,' and emphasizing the exciting experience of the scientist. By doing this, Einstein centers the scientist as a *person* rather than an objective entity, reminding his readers of the emotional and personal components which make science definitively subjective. The notion of science as something that one plays (like a sport), also makes science seem even less professional than religion, for example. In multiple texts, Einstein's questions of the seriousness and authority of science, by calling attention the highly personal and subjective nature of scientific study. It is through these comparisons that Einstein forces his readers to challenge the popular notion that science is entirely different from religion.

Einstein furthers his critique of scientific fields calling attention to their self-affirming tendencies. Scientific fields, like echo chambers, define and confirm their own ideas, lacking in self-critique, and causing the different fields to become increasingly specified and divided. They act as positive feedback loops: prescribing ways of testing their own hypotheses,

in turn confirming their own world views. Einstein describes this pitfall in "The Rise of the Mechanical View," writing, "In the case of the planets moving around the sun it is found that the system of mechanics works splendidly. Nevertheless we can well imagine that another system based on different assumptions, might work just as well." (Einstein, 89) Here, Einstein suggests that there is a certain extent of arbitrary-ness to scientific systems, and that there are countless other ways of explaining the same phenomena. Those other systems just have not yet been "imagined" – a choice of word which further de-legitimizes the objective nature of science, reminding the reader that the whole field is merely a human construction. Similar to committing oneself to digging a single hole deeper, as opposed to digging in various different areas, scientific fields propel their own worldviews farther in a single direction, running the risk of taking science as a whole away from a wholesome or widely relatable worldview. As each field 'progresses,' creating increasingly more specific offshoot fields, the 'scientific' picture of the world becomes increasingly complicated and fractured, key factors contributing to Einstein's skepticism.

Even though Einstein does not believe in an 'objective truth,' which is the very grounding principle for science, he devotes his life to engaging in the scientific tradition, thoroughly investigating his own skepticism. While recognizing the ultimate theoretical meaninglessness of the pursuit of objective knowledge, instead of brooding in a nihilistic passivity, he nevertheless throws himself headfirst into rigorous study. Einstein's pursuit is fueled by his inner passion to explore. He recognizes that there ought to be a shift from the theoretical to the practical, in order to get anywhere, writing, almost as if comforting himself, "In this methodological uncertainty, one might suppose that there were any number of possible systems

of theoretical physics all equally well justified; and this opinion is no doubt correct, theoretically. But the development of physics has shown that at any given moment, out of all conceivable constructions, a single one has always proved itself decidedly superior to all the rest." (Einstein, 93) This passage perfectly illustrates Einstein's attempt to reckon with his predicament: reminding himself that some ideas are certainly more rational than others. He must reconcile his deep-set philosophical understanding of the world with his desire to be a practical and productive contributor to his chosen field. Contribute he did: Einstein is fact responsible for the most important scientific theory of the 20th century – the earth-shattering Theory of Relativity (encompassing both the theories of 'special relativity' and 'general relativity'), which abolished the accepted Newtonian foundation for describing the physical world. His theory forced science into an entirely new world paradigm, founded on the new notion of relativity.

To understand the extent to which Albert Einstein impacted science is extremely difficult. In the realm of the liberal arts and philosophy, a comparison between Einstein and Friedrich Nietzsche could be made. Nietzsche, who de-legitimized the concept of an absolute morality, shattered the foundations of Western philosophy forever. Einstein, who demonstrated the relative nature of space and time, revolutionized physics and the scientific method more generally. Carefully questioning scientist's claims to objectivity and Truth, and calling into question the foundational absolutist nature of the Newtonian worldview, Einstein's 'Theory of Relativity' gave rise to an entirely new relativist paradigm. Einstein is a truly unique figure who both created science as we know it, as well as shattered the notion humanity can reach an objective truth over nature.

Works Cited

Einstein, Albert. “Autobiographical Notes,” “The Rise of the Mechanical View,” and “Principles of Research.” *Foundation Year Programme Handbook*, Section V. University of King’s College. 2017, pp. 77-99.