

## CHAPTER I

### INTRODUCTION

#### A. Background of Study

In the modern century, science made great strides in seeing individuals as entering the stage of logical thought. In contrast to medieval theocentric philosophy,<sup>1</sup> Rationalism developed as the basis for today's anthropocentric sciences. In this age, science has become secular—that is, it claims that knowledge comes from people themselves (*anthropocentric*),<sup>2</sup> Not from religious texts, teachings, or authority. Modernity has led to spiritual emptiness (*de-spiritualization*) and a crisis of values.<sup>3</sup>

The German philosopher Nietzsche said that (*God is dead*) in Western society. The closure of the philosophical debate in which theology dwells marks the death of God in the West. God is no longer the *supreme being*.<sup>4</sup> Today, nothing is absolute. Everything is relative. God can no longer be

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<sup>1</sup> Anwar Mujahidin, "Epistemologi Islam: Kedudukan Wahyu Sebagai Sumber Ilmu," *ULUMUNA: Jurnal Studi Keislaman* 17. No. 1 (2013): 27.

<sup>2</sup> M. Solihin, *Perkembangan Pemikiran Filsafat Dari Klasik Hingga Modern*, Bandung, Pustaka Setia, 2007, p. 27.

<sup>3</sup> Ismail Marzuki.et.al, *Filsafat Ilmu Pengetahuan*, Makasar, Fakultas Teknik Universitas Fajar, p.152.

<sup>4</sup> Tiar Anwar Bachtiar, *Pertarungan Pemikiran Islam di Indonesia*, Jakarta, Pustaka Al- Kautsar, 2017, p. 253.

shown. According to Kant, "*metaphysics is something impossible*" because it is not based on the five senses; therefore, (*metaphysical assertions are without epistemological value*).<sup>5</sup> Adnin Armas has described this as a "theological detachment" process,<sup>6</sup> or the separation of science from metaphysics. Modern Western society is not universal,<sup>7</sup> and people regard religious values as one of the subjective events.<sup>8</sup> As Muhammad Asad (Leopold Weiss) pointed out, Western civilization recognizes only human submission to economic, social, and national demands. In its epistemology, all metaphysical things (God, revelation) were never involved when the West attempted to extract scientific knowledge.<sup>9</sup> Atheistic views from developing the secular epistemology<sup>10</sup> that dominates Western civilization find their

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<sup>5</sup> Justus Harnack, *Kant's Theory of Knowledge*, M. Holmes Hartshorne, London, Macmillan, 1968 p. 142-145.

<sup>6</sup> Adnin Armas, *Krisis Epistemologi dan Islamisasi Ilmu*, Ponorogo, Center for Islamic and Occidental Studies (CIOS), 2007, p. viii.

<sup>7</sup> Dinar Dewi Kania, Konsep Nilai dalam Peradaban Barat, *Tsaqafah Jurnal Peradaban Islam*, Vol.9.Nomor.2. 2013, p. 246.

<sup>8</sup> Adian Husaini, *Wajah Peradaban Barat Dari Hegemoni Kristen Ke Dominasi Sekular-Liberal*, Jakarta, Gema Insani Press, 2005, p. 56.

<sup>9</sup> Mujamil Qamar, *Epistemologi Pendidikan Islam dari Metode Rasional hingga Metode Kritik*, Jakarta, Penerbit Erlangga, p.96.

<sup>10</sup> Seyyed Hossein Nasr, *Islam, Science, Muslims, And Technology (Seyyed Hossein Nasr in Conversation with Muzaffar Iqbal)*, Kuala Lumpur, Al- Qalam Publishing Sherwood Park, 2007, p.180.

way into many scientific fields,<sup>11</sup> including religion, philosophy, physics, sociology, psychology, politics, and economics.

Moreover, in the field of methodology, the West considers suspicion and conjecture as equivalent to the scientific method<sup>12</sup> Of seeking the truth. They are unaware that maintaining this approach will only lead to more questions without discovering an apparent reality, which will never provide security and confidence. Syamsuddin sees this as a sign of cognitive confusion,<sup>13</sup> Sometimes known as scientific uncertainty. Modern people will find it difficult to distinguish right from wrong when they reach this level of cognitive uncertainty; they often equate and even combine the two (*haq* and *batil*). This element led Hume (1804) to conclude *that "knowledge is unattainable."* Therefore, science and moral-ethical principles, controlled by human relations, will constantly change.

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<sup>11</sup> Seyyed Hossein Nasr, *Islam, Science, Muslims, And Technology (Seyyed Hossein Nasr in Conversation with Muzaffar Iqbal)*, Kuala Lumpur, Al- Qalam Publishing Sherwood Park, 2007, p.180.

<sup>12</sup> Hikmah, Muslimah, et.al, *Epistemologi Ilmu Dalam Perspektif Islam*, Palangkaraya, *Akademika*, Vol. 15.No. 2, 2021, p.33

<sup>13</sup> Syamsuddin Arif, *Islam dan Diabolisme Intelektual*, Jakarta Selatan, INSIST, 2017, p. 47.

Based on modernity, Western epistemology has created problems and contradictions within itself.<sup>14</sup> As a result, the epistemology of science in the West always produces *value-free* science.<sup>15</sup> Nevertheless, Western epistemology remains the starting point of universal truth and the only *mode of knowing*.<sup>16</sup> They do not seem to realize that the methodology they have developed has reduced science to an endless process of solving, freezing, or satirizing the subject when studying it and then distancing it when evaluating it.

When the West tried to construct a scientific epistemology based on the ideas of secularism, this rationalism became a source of disease and destruction, Adorno said.<sup>17</sup> This ideology leads science to treat the objects of its research (human and non-human) as objects to be exploited, manipulated, dissected, and even tortured in the name of '*science*'.<sup>18</sup> The overarching emphasis on control and domination has led to an ecological

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<sup>14</sup> Milda Longgeita Pinem, Kritik Terhadap Epistemologi, Yogyakarta, *Jurnal Filsafat Indonesia*, Vol.3. No. 3, 2020, P.126.

<sup>15</sup> Syed Muhammad Naquib Al- Attas, *Prolegomena to the Metaphysics of Islam: an Exposition of the Fundamental Elements of The Worldview of Islam*, ISTAC, Kuala Lumpur, 1995, p. 117.

<sup>16</sup> Muniron, *Epistemologi Ikhwan As- Shafa*, Yogyakarta, Pustaka Pelajar, 2011, p.4.

<sup>17</sup> T.W. Adorno & M. Horkheimer, *Dialectic of Enlightenment*, California, Stanford University Press, 2002.

<sup>18</sup> Saude Saude, "Sekularisasi Dan Islamisasi Ilmu Pengetahuan," *HUNafa: Jurnal Studia Islamika* 5, no. 2 (2008): 165, <https://doi.org/10.24239/jsi.v5i2.163.165-176>.

crisis that threatens humanity's place on Earth. This modern science does not make people human but *alienates* them from themselves and others.

Scientists are made to appear like God, who has the image of being the arbiter of truth and the determinant of absolute validity,<sup>19</sup> So, there is no need to question them. This modern man has become a follower of Feurbach's ideology, which says that man is the highest principle of philosophy.<sup>20</sup> Religion has lost its meaning; it is anthropology (*the true meaning of theology is anthropology*). Religion is the dream of the human mind.<sup>21</sup> Therefore, the relationship between science and religion has never been harmonious.

Saintism is a new concept That has become the prevailing intellectual framework. Beerling asserts that science is the most important monument that Western civilization has erected for contemporary society. Science governs all aspects of culture, technological economy, politics, and even

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<sup>19</sup> Hairuddin Harun, Sains Modern Dan Permasalahan Manusia, *Jurnal Filsafat*, Universitas Kebangsaan Malaysia, 1994, p.29.

<sup>20</sup> Op.cit. *Krisis Epistemologi dan Islamisasi Ilmu*, p. 3.

<sup>21</sup> Ludwig Feurbach, *The Essence of Christianity*, diterjemahkan oleh George Eliot, New York, Prometheus Books, 1989, p. xii-xix.

art.<sup>22</sup> Beerling's claim is one of many manifestations of scientism that have emerged in Western societies.<sup>23</sup>

After seeing the representation of the phenomenon in the West, Marvin Perry, through his writing in the book 'Western Civilization: A Brief History...';<sup>24</sup> The West is a great civilization, but at the same time, a tragic drama (a tragic drama), stated so because this civilization is full of contradictions; on the one hand, it promotes scientific and technological progress, which creates various living facilities, but on the other hand, this civilization contributes in no small way to the destruction of the universe. Its unbridled growth is destroying the vital resources of our humanity. It creates a culture without a moral basis. It destroys specific mental processes and social relationships that make life worth living.<sup>25</sup>

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<sup>22</sup> Mulyadhi Kartanegara, *Integrasi Ilmu Sebuah Rekonstruksi Holistik* (Jakarta: UIN Jakarta Press, 2005), p. 149. [https://www.google.co.id/books/edition/Integrasi\\_Ilmu/e\\_9tA8CRln8C?hl=en&gbpv=1&dq=sains+modern&pg=PA149&printsec=frontcover](https://www.google.co.id/books/edition/Integrasi_Ilmu/e_9tA8CRln8C?hl=en&gbpv=1&dq=sains+modern&pg=PA149&printsec=frontcover).

<sup>23</sup> Beberapa jenis saintisme yang berkembang di Barat ada setidaknya 3 yaitu: saintisme ontologis (*ontological scientism*), saintisme eksistensial (*existential scientism*), dan saintisme aksiologis (*axiological scientism*), Steenmark dalam Mulyadhi Kartanegara, *Paradigma Sains Integratif Al-Farabi Pendasaran Filosofis bagi Relasi Sains, Filsafat, dan Agama*, Jakarta, Sadra International Institute, 2015, p. 32.

<sup>24</sup> Melvin T. L. Ang and Robin W. Winks, *Western Civilization: A Brief History, The History Teacher*, vol. 13 (New York: Wadsworth Cengage Learning, 1980), <https://doi.org/10.2307/491694>.

<sup>25</sup> Neil Postman, *Teknopoli: Budaya, Saintisme, Monopoli Teknologi*, terj. Dari *Technopoly: The Surrender of Culture to Technology* (Vintage Books: 1992), Dhannil Herdiman, Yogyakarta, Penerbit: Basabasi, 2021, p. 6.

Marcuse calls this scenario science, designed to be used as the theoretical instruments of a universe. This universe is automatically controlled, so theoretical operationalism adapts to practical operationalism, namely modern technology.<sup>26</sup> Contributions to the fields of ratio, science, and technology have made possible the successful landing on the moon, the production of rain, the regulation of warm air, the provision of salty sea water, the birth of children through IVF, and the solution of complex calculations with a single calculator.

James Canton, CEO and Chairman of the Institute for Global Futures, predicts ten significant trends that will shape the future. One of these trends is weird science, which has the potential to revolutionize all aspects of human existence, culture, and business. Although Western technological advances have made everyday life more accessible,<sup>27</sup> The scientific basis of these technologies is at stake.

The progress of modern science and technology has provoked a critical response from the American physicist Fritjof Capra. He argues that modern

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<sup>26</sup> Jurgen Habermas, *Ilmu Dan Teknologi Sebagai Ideologi, terj: Technik und wissenschaft als ideologi*, Jakarta, Penerbit LP3ES, 1990, p. 49.

<sup>27</sup> Fardana Khirzul Haq, et.al, *Kritik Terhadap sains Modern (Studi Pemikiran Seyyed Hossein Nasr dan Fritjhoff Capra)*,



science and technology have caused significant damage to humanity. This conclusion is supported by the fact that modern science is used to exert dominance and control over the environment through its sophisticated technology.<sup>28</sup> Further evidence comes from the identification of negative premises articulated by several scientists in Western societies, such as Gregory Bateson, who posited that *'if something is more beneficial to us, then the greater its abundance, the more beneficial it becomes.'*<sup>29</sup> Nietzsche famously said, *"Man is a creature to be mastered; what have you done to master him?"*<sup>30</sup>

This is what Sardar calls a rational war. An artificial intelligence that seeks to fight both man and his environment. As quoted by Sardar, Vandana Shiva also articulated her disapproval of contemporary science that promotes violence, specifically in the following ways: 1) violence against the object of knowledge, 2) violence against the consumers of knowledge, and 3) violence against the acquisition of knowledge.<sup>31</sup> Modern science is used to pursue private interests by exploiting nature and

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<sup>28</sup> Fardana Khirzul Haq, et.al, *Kritik Terhadap sains Modern (Studi Pemikiran Seyyed Hossein Nasr dan Fritjoff Capra)*,

<sup>29</sup> Gregory Bateson, *Steps to an Ecology of Mind* (Chicago and London: The University of Chicago Press, 1972), [https://www.google.co.id/books/edition/Steps\\_to\\_an\\_Ecology\\_of\\_Mind/HewJbnQmn1gC?hl=en&gbpv=1&dq=gregory+bateson&printsec=frontcover](https://www.google.co.id/books/edition/Steps_to_an_Ecology_of_Mind/HewJbnQmn1gC?hl=en&gbpv=1&dq=gregory+bateson&printsec=frontcover).

<sup>31</sup> Ni'matul Masfufah, *Islam Kosmologi Baru dan Agama Baru*, Garudhawaca Digital Book and POD, p.93-94.



humanity. A science that replaces the role of divine revelation as the guiding principle of life and may even be expected to replace religion itself.<sup>32</sup>

In his book "*The Impact of Science on Society*,"<sup>33</sup> Bertrand Russel claims that science has the potential not only to surpass God's brilliance but also to be used to defeat God. This statement highlights the remarkable hubris of humanity towards the Creator. Technology is a secular deity worshipped by humans.<sup>34</sup> A hypothetic deduction tool has firmly established modern science's foundations. Scientists test their hypotheses by comparing them with empirical evidence in a logical framework. This approach ensures the stability of a theory through continuous verification with empirical evidence, making everything reasonable and logically impressive.

The basis of the scientific method is the idea that events in the past will always be the same in the future. This leads to several problems, including the scientific method's limitations in assuming theories that can only be

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<sup>32</sup> Kuntowijoyo, *Islam Sebagai Ilmu, Epistemologi, Metodologi, dan Etika*, Bandung, Teraju Mizan, 2004, p. 6-75.

<sup>33</sup> Bertrand Russell, *The Impact of Science on Society* (New York: Routledge, 2016), [https://www.google.co.id/books/edition/The\\_Impact\\_of\\_Science\\_on\\_Society/AEr7CwAAQBAJ?hl=en&gbpv=1&dq=the+impact+of+science+on+society&printsec=frontcover](https://www.google.co.id/books/edition/The_Impact_of_Science_on_Society/AEr7CwAAQBAJ?hl=en&gbpv=1&dq=the+impact+of+science+on+society&printsec=frontcover).

<sup>34</sup> Faisal Ismail, *Islam, Doktrin dan Isu- Isu Kontemporer*, Yogyakarta, IRCiSoD, 2016, P.331.

verified by facts, the bigotry of the new isms (*scientism, empiricism, materialism, etc.*) that hold that nothing is real outside of matter and observed phenomena, and finally, the inability of science to provide solutions to moral and ethical dilemmas.<sup>35</sup>

The desire of secular scientists to distance themselves from or abandon religion is utterly disastrous. Science is in a crisis when the constructed theories can no longer explain the observed facts. Under these circumstances, Islamic scientists will initiate a revolution to establish a new paradigm known as Islamic science. A distinguished Muslim scholar and professor from Malaysia, Osman Bakar has shown remarkable productivity in science, especially in modern science. Like his mentor Nasr, he also offers critiques of contemporary science from multiple perspectives, from epistemological to axiological. His book *Tawhid and Science* argues that contemporary science has negative and positive consequences. Furthermore, Osman Bakar argues that contemporary science tends to embrace the revealed scriptures and the intuition of reason when it cannot

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<sup>35</sup> Saiyad Fareed Ahmad dan Saiyad Salahuddin Ahmad, *5 Tantangan Abadi Terhadap Agama dan Jawaban Islam Terhadapnya*, Bandung, PT Mizan Pustaka, 2008, p.78.

maintain its epistemic basis, thus becoming entangled in philosophical paradoxes.<sup>36</sup>

Based on his basic knowledge of Tawhid, Osman Bakar, a Muslim scholar with a traditional Islamic point of view and familiarity with current Western philosophy, addresses the historical features of Islamic science. This awareness helps to bridge the gap between Islamic scholarship and contemporary research. In addition, Osman Bakar expands his ideas and broadens scientific analysis according to scientific signals and purely Islamic philosophical positions.<sup>37</sup> Thus, the ideas expressed by Osman Bakar through the concept of Islamization of Science, which he invented, will help solve the dilemma of current Western science, which creates many kinds of human crises. By integrating the ideas of Islam, namely Tawhid and science, he aimed to remove the cancer that exists in this Western science by purifying the current human thinking, especially that of Muslims.

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<sup>36</sup> Mujamil Qamar, *Epistemologi Pendidikan Islam dari Metode Rasional hingga Metode Kritik*, Jakarta, Penerbit Erlangga, p.96.

<sup>37</sup> Osman Bakar, *Hierarki Ilmu Membangun Pola Pikir Al- Farabi, Al- Ghazali, Qathbuddin Al- Syirazi*, terj. *Classification of Knowledge in Islam: A Study in Islamic Philosophies of Science*, (Malaysia; Institute for Policy Research; 1992), (Bandung; Mizan Anggota IKAPI; 1997), p. 14-15.

## **B. Problem Of Study**

Based on the background information provided, the researcher determines the area to study:

1. What is Osman Bakar's view on modern science?
2. What is the fundamental foundation of Osman Bakar's Islamic Science conceptual framework?

## **C. Aim of The Writing**

Further analysis of this letter is conducted concerning the problem mentioned above, mainly:

1. To show the background of Osman Bakar's thought and attention to modern scientific development
2. To reconstruct the concept of Islamic science based on the thought of Osman Bakar. Hopefully, this research will be an exciting study that applies the integration pattern of science and religion. Philosophically, it is an answer to the deadlock problem in implementing religion-based science development

## **D. Benefits of Writing**

Writing this scientific paper aims to enrich knowledge both theoretically and practically. Theoretically, this research is helpful for:

1. Expanding the scientific treasures of Islamic Aqeedah and philosophy, especially in Islamic thought and Islamization.
2. Enriching the knowledge of Osman Bakar as a thinker of the contemporary era and his contribution to the efforts to develop a modern-contemporary Islamic theory of science.

Practically, this research is expected to:

1. To be used as a reference point for further research on the same subject or for a more sensitive discussion.
2. Provide guidelines and appropriate methods for reviewing criticisms of modern science.
3. As an instrument for understanding Islamic science and Islamic vision of the world.

#### **E. Literature Review**

To assess the significance of this study, it is essential to examine prior research as a benchmark for the author to produce scientifically valuable works for the public, particularly in future scientific advances. Previous research presented in the form of scientific publications is reviewed. The

search for fund documentation or relevant literature is a typical endeavor.

<sup>38</sup> This is to avoid any scientific fallout.

It is also necessary to assess the limitations or benefits of previous research about the study.<sup>39</sup> With regard to the researcher's exploration of various sources of literature, no study results have been found that are specifically concerned with the analysis of the concept of Islamic science as defined by Osman Bakar.

Abdul Razak Panaemalae's paper *Falsafah dan Sains Tauhidik Teras Tamadun Profetik*,<sup>40</sup> clarifies the necessity of mixing philosophy and religion to create Muslim civilization. Razak also offers some opinions of Muslim scholars on the value of philosophy in the intellectual heritage of Muslims themselves, including *Al-Ghazali's explanation of his philosophy of tawhid* and Seyyed Hossein Nasr. However, Razak's paper does not reflect Osman Bakar's views on Islamic scholarship.

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<sup>38</sup> Sugiyono, *Cara Mudah Menyusun Skripsi, Tesis dan Disertasi*, Bandung, ALFABETA, 2014, p. 55.

<sup>39</sup> Ahmad Ali Riyadi, *Dekonstruksi Tradisi: Kaum Muda NU Merobek Tradisi*, (Yogyakarta: Ar- Ruzz Media, 2007), p. 19-20.

<sup>40</sup> Abdul Razak Panaemalae, "Falsafah Dan Sains Tauhidik Teras Tamadun Profetik," n.d., 536–43.

An article entitled “*Sains Baharu Menurut Osman Bakar*” was written by Kamal Azmi bin Abd Rahman. Kamal Azmi explained that the new science proposed by Osman Bakar is an answer to the problems of modern science, which is no longer relevant to the issues of life in the post-modern era.<sup>41</sup> This article focuses on Osman Bakar's idea to form a new science by synthesizing Islamic, modern, and postmodern science. The article does not explicitly explain Osman Bakar's tawhidic science.<sup>42</sup>

The article written by Dedeh Hamidah, “*Konsep Tauhid Menurut Osman Bakar Dan Implikasinya Terhadap Ilmu Pendidikan*,” published in 2021 at IAID Ciamis, is a study that focuses on Osman Bakar's concept of Tawhid and its implications for education. The article does not mention Tawhidic science, so discussing Osman Bakar's thoughts is imperfect.<sup>43</sup>

Martin Putra has written an article titled “*Ziauddin Sardar on Islamic Science*.”<sup>44</sup> In his article, he describes how Islam responds to the development of contemporary science and how Ziauddin Sardar responds

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<sup>41</sup> Kamal Azmi Abdurrahman, “*Sains Baharu Menurut Osman Bakar*,” in *Seminar Antarbangsa Islam Dan Sains 2021* (Malaysia: University Sains Islam Malaysia, 2021), 547–59.

<sup>42</sup> Kamal Azmi Abdurrahman.

<sup>43</sup> Dedeh Hamidah, “*Konsep Tauhid Menurut Osman Bakar Dan Implikasinya Terhadap Pendidikan*” (Institute Agama Islam Darussalam, 2021).

<sup>44</sup> Martin Putra Perdana, “*Ziauddin Sardar On Islamic Science*” (Darussalam Gontor University, 2022).



to modern-contemporary phenomena. He also wrote a solution for Sardar to deal with the above problem by reconstructing a scientific building and creating the Islamic Science model Ziauddin Sardar concept. Of course, Tawhidic Science, especially Osman Bakar's concept of Tawhidic Science, will not be discussed in detail in this article.

*"Struktur Fundamental Sains Islam Dalam Pemikiran Seyyed Hossein Nasr"*<sup>45</sup>

is the title of an article authored by Nur Akhda Sabila. The paper's author outlines the process of Islamic scientific construction established by Seyyed Hossein Nasr and the consequences of Nasr's perspectives on advancing science rooted in religion. In this study, the researcher determined that Seyyed Hossein Nasr attempted to establish Islamic science by formulating a scientific development framework grounded on revelation and tradition. Therefore, both will establish a model of sanctity, unity, and scientific hierarchy according to the Islamic scientific framework in his philosophical perspective. This paper does not address the rebuilding of Islamic science undertaken by Osman Bakar.

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<sup>45</sup> Nur Akhda Sabila, "The Fundamental Structure of Islamic Science In Seyyed Hossein Nasr" (Darussalam Gontor University, 2019).

Akbar Tanjung's research, *"Implikasi Sains barat Modern Terhadap Lingkungan Hidup Dalam Perspektif Teologi,"*<sup>46</sup> Published in 2019 at UIN Raden Intan Lampung, it examines the attributes of modern Western science and its application to human existence from an environmental theological perspective. This thesis does not address Osman Bakar's views on tawhid science.

In her 2021 publication by the University of Indonesia, Fardana Khirzul Haq presents a research paper titled *"Kritik Terhadap Sains Modern (Studi Pemikiran Seyyed Hossein Nasr"*. This study employs the critical-analytical approach to examine the perspectives of Seyyed Hossein Nasr and Fritjof Capra, who offer criticisms of modern science. It was determined that Seyyed Hossein Nasr and Fritjof Capra expressed criticism against four aspects of contemporary science: the presence of a deity, the cosmos, evolution, and ecology. Specifically, the author of this thesis identifies a distinction in examining Osman Bakar's perspective on the concept of Tauhidik Science.

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<sup>46</sup> Akbar Tanjung, *"Implikasi Sains Barat Modern Terhadap Lingkungan Hidup Dalam Perspektif Teologi," Tesis* (2019).

The study entitled "*Sains Modern Dan Dunia Arab: Tantangan Pendekatan Islam Terhadap Sains Alam Oleh Seyyed Hossein Nasr, Zaghoul An- Najjar, Dan Nidhal Guessoum,*" by Selvia Santi, published by UIN Sunan Kalijaga in 2019, examines the impact of modern science, particularly in the fields of cosmology and Darwin's theory of evolution, on human existence. It also describes the responses articulated by Arab Muslims. The paper offers responses by proposing the notion of the Islamization of science based on the works of Seyyed Hossein Nasr, Zaghoul Al-Najjar, and Nidhal Guessoum. This paper uses Michel Foucault's ideas of archaeology, genealogy, and normalization to critically reassess the Islamic perspective on contemporary science as expressed by Nasr, Al-Najjar, and Guessoum. This study is a descriptive-analytical research design, namely a character study.<sup>47</sup> Firstly, this study does not overtly elucidate Osman Bakar's Tawhidic science in its analysis.

Muhammad Fiqih Cholidi's '*Seyyed Hossein Nasr on Islam and Science*',<sup>48</sup>

The research aims to demonstrate Nasr's unique approach to combining

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<sup>47</sup> Selvia Santi, *Sains Modern Dan Dunia Arab: Tantangan Pendekatan Islam Terhadap Sains Alam Oleh Seyyed Hossein Nasr, Zaghoul Al- Najjar Dan Nidhal Guessoum, Carbohydrate Polymers*, vol. 6, 2019.

<sup>48</sup> Muhammad Fiqih Cholidi, "*Seyyed Hossein Nasr on Islam And Science*" (Darussalam Gontor University, 2017).

Islam and science in the context of science and Islam debate. His approach departs from the philosophical principles of cosmology. According to him, cosmology has the characteristics of medicine because it consolidates all the disjointed information into a single entity, reveals the essence, formulates it methodically, and undermines the obstacles imposed by science. In this study, the researchers only elucidate Nasr's perspective on science without delving into a comprehensive analysis of monotheistic science, especially Osman Bakar's analysis.

This research is novel because it focuses on Osman Bakar's reconstruction of Islamic Science, particularly through the lens of Tawhidic science and religion. This approach introduces a new perspective on addressing the epistemological crises, axiological crises, and military effects of science and technology in contemporary science, proposing a framework that integrates ethical and moral dimensions into scientific inquiry. The research contributes to the discourse on Islamic science by comprehensively analyzing Bakar's thoughts and their implications for modern scientific challenges.

#### **F. Theoretical Framework**

From identifying and exploring relevant ideas,<sup>49</sup> a research project needs a theoretical framework to define and hypothesize the topic of study.<sup>50</sup> Starting with the question of the scientific crisis that has arisen, the researcher applied Thomas Kuhn's paradigm theory<sup>51</sup> to observe and understand the scientific difficulties in the framework of Tauhidik Science,<sup>52</sup> thereby sharpening the analysis. Kuhn's paradigm consists of two aspects: first, fresh elements that lure followers out of the rivalry of past working techniques; second, the simultaneous provision of new concerns that are still open and unresolved,<sup>53</sup> agreement on genuine cognitive goals.

Analyzing the scope of work of Kuhn's paradigm concept, which has reached an established scientific tradition (*status quo*), which includes beliefs, values, and techniques, this concept can replace explicit rules as the basis for solving scientific problems,<sup>54</sup> including solving the problems of

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<sup>49</sup> Ronny Kountur, *Metode Penelitian Untuk Penulisan Skripsi dan Tesis*, Jakarta, PPM Manajemen, 2009, p.68.

<sup>50</sup> Ahmadd Taufik Nasution, *Filsafat Ilmu (Hakikat Mencari Pengetahuan)*, Yogyakarta, Deep Publisher, 2016, p.126.

<sup>51</sup> Thomas Kuhn, *The Structure of Scientific Revolutions, Knowledge and Postmodernism in Historical Perspective*, vol. II (America: The University of Chicago Press, 2020), <https://doi.org/10.5840/philstudies196413082>.

<sup>52</sup> Mirza Mahbub Wijaya Mahfud Junaedi, *Pengembangan Paradigma Keilmuan Perspektif Epistemologi Islam Dari Perenialisme Hingga Islamisme, Integrasi- Interkoneksi Dan Unity of Science* (jakarta: KENCANA, 2019).p.4

<sup>53</sup> Kuhn, *The Structure of Scientific Revolutions*.p. 11-12.

<sup>54</sup> Kuhn. P. 175.

the scientific revolution, which keeps changing as time progresses. Through critical analyses and ideas like pre-paradigm, normal science, and revolution,<sup>55</sup> the author may identify answers to the challenges of the modern-postmodern scientific revolution.<sup>56</sup>

Thus, in line with the features of Thomas Kuhn's first paradigm theory, these modern Muslim academics propose an element of novelty to solve the problems of the scientific revolution, namely by introducing the concept of Tawhidic science to try to find a dialogue between religion and science, instead of the idea of Western secularism. The Moroccan Osman Bakar is one of the Muslim academics who contributed to the development of Tawhidic Science.

According to Osman Bakar, tawhidic science theoretically combines several sciences into the metaphysical science of (tawhid), as the divine principle is the metaphysical source of the universe's diversity that the specific science studies.<sup>57</sup> Osman Bakar's tawhidic scientific model, which seeks to establish a thorough link between science and religion, is an Islamic

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<sup>55</sup> Sholihan, *Modernitas, Post Modernitas, dan Agama*, Semarang: Walisongo Press, 2008, p. 30.

<sup>56</sup> Nurkhalis, "Konsep Epistemologi Paradigma Thomas Kuhn," *Jurnal Substantia* 14.No.2, no. Filsafat (2012): 210–23.

<sup>57</sup> Osman Bakar, *Tauhid Dan Sains Esai- Esai Tentang Sejarah Dan Filsafat Sains Islam* (Bandung: Pustaka Hidayah, 1994).

information structure model in which information is methodically arranged and divided into several academic specialties.

Furthermore, scholars have used Seyyed Hossein Nasr's concept of sacred scholarship to further the study of the process of Islamizing modern Western scholarship, as envisaged by Osman Bakar.<sup>58</sup> This concept is based on the principles of scientific integration.<sup>59</sup> This sacred science serves as a remedy for the secularization of science in the Western world,<sup>60</sup> thus establishing the inseparability of religion from science and intellect from faith (*credo quod intelligent et intelligent ut cream*).<sup>61</sup>

#### **G. Research Methodology**

A method that guides the researcher through the research process and solves its main problems is needed to achieve this research's objectives.<sup>62</sup> It is necessary to know the type of research, the method of analysis, and the

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<sup>58</sup> Seyyed Hossein Nasr, *Knowledge and The Sacred*, New York, State University of New York Press Albany, 1989.

<sup>59</sup> Ahmad Zamakhsari, *Rekonstruksi Pemikiran Mulla Sadra Dalam Integrasi Keilmuwan Membangun Pendidikan Integratif Non- Dikotomik* (Jakarta: Sakata Cendekia, 2014), [https://www.google.co.id/books/edition/Rekonstruksi\\_Pemikiran\\_Mulla\\_Sadra\\_Dalam/4GxpEAAAQBAJ?hl=en&gbpv=1&dq=osman+bakar&pg=PA60&printsec=frontcover](https://www.google.co.id/books/edition/Rekonstruksi_Pemikiran_Mulla_Sadra_Dalam/4GxpEAAAQBAJ?hl=en&gbpv=1&dq=osman+bakar&pg=PA60&printsec=frontcover). P. 60.

<sup>60</sup> Adian Husaini, *Filsafat Ilmu Perspektif Barat dan Islam*, Jakarta, Gema Insani, 2019, p.267.

<sup>61</sup> Op.cit. Seyeed Hossein Nasr, *Knowledge and The Sacred*, p.6.

<sup>62</sup> Moh. Nazir, *Metode Penelitian* (Bogor: Penerbit Ghalia Indonesia, 2014).p.33.



data sources to obtain comprehensive academic writing and conclusions that can be scientifically accounted for. Besides that, this writing method is intended to support or reject a concept or theory and produce a recommendation based on the research results. Thus, this paper will describe things related to the research methods used by the author in analyzing Osman Bakar's Reconstruction of Islamic Science, showing the solutions he offers to the phenomenon of the crisis of modern science that has an impact on science, which includes the field of epistemology, cosmology, axiology, and methodology.

## 1. Type of Research

From the point of view of application, this research is a type of pure research because it is intended for the development of science.<sup>63</sup> The type of research in this thesis can be categorized as *library research* based on the place of research. According to Marry W. George, (*library research*) is a research model that involves identifying sources that provide information or involve expert questions about research.<sup>64</sup> This library method uses textual

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<sup>63</sup> Ronny Kountur, *Metode Penelitian Untuk Penulisan Skripsi Dan Tesis* (Jakarta: Buana Printing, 2009).p.59.

<sup>64</sup> Mary W. George, *The Elements of Library Research (What Every Student Needs to Know)*, United Kingdom (Oxford), Princenton University Press, 2008, p. 6.

materials<sup>65</sup> such as books, articles, journals, notes, and reports on the results of previous writing<sup>66</sup> and other library sources.

According to M. Atho Mudzar, this writing can be classified as cultural based on the subject. Artistic writing is a model of writing that focuses on thoughts, values, and cultural ideas as a product of human thinking.<sup>67</sup> In addition, based on the formulation of the problem, this scholarly writing is related to social phenomena, culture, art, and philosophy in an interdisciplinary manner<sup>68</sup> This research will analyze and explore the idea of Osman Bakar's Reconstruction of Islamic Science using secondary and primary literature.

By Combining these methods, the researcher is excited to gain a deeper understanding of the fascinating concept of Islamic Science proposed by Osman Bakar.

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<sup>65</sup> Masri Singarimbun, *Metodologi Penulisan Survey* (Jakarta: LP3ES, 1989).

<sup>66</sup> M. Iqbal Hasan, *Pokok- Pokok Materi Penulisan Dan Aplikasinya* (Jakarta: Ghalia Indonesia, 2002).p. 339.

<sup>67</sup> M. Atho Mudzar, *Pendekatan Studi Islam Dalam Teori Dan Praktek* (Yogyakarta: Pustaka Pelajar, 1992). P.37. Library Research juga diartikan sebagai penulisan yang data-datanya diperoleh dari studi pustaka atau literature terkait, kemudian dianalisis secara teoritis- filosofis, disimpulkan dan diangkat relevansinya serta kontekstualisasinya. Mahmud Arif, *Pendidikan Islam Transformatif* (Yogyakarta: LKis, 2008). P.10.

<sup>68</sup> Kaelan.M.S., *METODE PENELITIAN KUALITATIF BIDANG FILSAFAT (Paradigma Bagi Pengembangan Penelitian Interdisipliner Bidang Filsafat, Budaya, Sosial, Semiotika, Sastra, Hukum Dan Seni* (Yogyakarta: Paradigma, 2005).p.63.

## **2. Objects of Research**

The research subject in this dissertation is the ideas or thoughts of Osman Bakar on Islamic Science that are contained in his written works. Osman Bakar's thoughts in his research are directed to three main problems, namely:

- a) The concept of Tawhid and Science
- b) The Reconstruction of Islamic Science
- c) Modern and Contemporary Science Problem

## **3. Source of Data**

The data sources used are divided into two categories: primary data sources and secondary data sources. The primary sources used are Osman Bakar's written works in books, journal articles, and academic presentations. The number of Osman Bakar's works is quite large, and the range of topics is not limited. The data sources in this research are the works written by Osman Bakar that are on this theme, among others: Tawhid and Science (1994); in the book, Bakar describes the relationship between science

and religion along with the method of developing Islamic science which he formed as an answer to the crisis of modern science.<sup>69</sup>

In *Classification of Knowledge* (1992), Bakar explains how to formulate a concept of Islamization of science by using the classification of science as a scientific tradition Islam has long inculcated. Bakar also provides an analysis based on scientific signs and a philosophical perspective of Islam in this book.<sup>70</sup>

*Islamic Civilization And The Modern World Thematic Essays* (2014), from which researchers have taken historical points about the existence of the globalization of civilization, the Qur'anic theory of the identity of Muslim civilization, Tawhid as the basis of the epistemology of science, the core content of knowledge culture, Islamic theory and the three waves of globalization.<sup>71</sup> *The History and Philosophy of Islamic Science* (1999), an introductory book to Osman Bakar's thought, is the main reference for

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<sup>69</sup> Osman Bakar, *Tauhid Dan Sains Esai- Esai Tentang Sejarah Dan Filsafat Sains Islam*.

<sup>70</sup> Osman Bakar, *HIERARKI ILMU (Membangun Rangka- Pikir Islamisasi Ilmu Menurut Al- Farabi, Al- Ghazali, Qathb Al- Din Al- Syirazi)* (Malaysia: Penerbit Mizan, 1992).

<sup>71</sup> Osman Bakar, *Islamic Civilization And The Modern World Thematic Essays* (Malaysia: Ubd Press a Soascis Publication, 2014).

researchers to understand the concept of Islamic science promoted by Osman Bakar.<sup>72</sup>

Meanwhile, secondary data include books or articles related to the formal object or support in describing the material object of research.<sup>73</sup> Among them are *Sains Baharu Menurut Osman Bakar* (2021), *Pengintegrasian Sains Tauhidik: Persepsi Peserta Tauhidic Science Integrative: Participant's Perception* (2017), *Konsep Tauhid Menurut Osman Bakar* (2021), *Falsafah Dan Sains Tauhidik Teras Tamadun Profetik* (2022), *Sains Tauhidik dalam Pembangunan Peradaban Melayu* (2017), *Pengaruh Globalisasi Terhadap Peradaban* (2008), *Sains Dalam Perspektif Islam* (1993).

#### **4. Methods of data analysis**

The descriptive method is accompanied by a critical-analytical method. The author elucidates, examines, and evaluates the basic concepts, which are then linked and contrasted<sup>74</sup> with the theoretical framework's ideas,

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<sup>72</sup> Osman Bakar, *The History And Philosophy of Islamic Science* (Malaysia: Islamic Text Society, 1999).

<sup>73</sup> Kaelan.M.S., *METODE PENELITIAN KUALITATIF BIDANG FILSAFAT (Paradigma Bagi Pengembangan Penelitian Interdisipliner Bidang Filsafat, Budaya, Sosial, Semiotika, Sastra, Hukum Dan Seni.* p.

<sup>74</sup> Dvora Yanow, *Interpretation And Method Empirical Research Methods and the Interpretative Turn* (Amsterdam: Georgetown University Press, 1996). P.203.

concepts, and theories to compare, link, and extend the model.<sup>75</sup> Critical methodologies in research are essential to address fundamental and practical<sup>76</sup> questions about the nature of Islamic epistemology and Osman Bakar's Islamic scientific paradigm.

According to this description, this scientific work can be classified as qualitative research. One component of qualitative research is the application of a method.<sup>77</sup> This study uses a philosophical approach to research. This method explicitly and unambiguously articulates Osman Bakar's theories.<sup>78</sup>

A character study is a methodical examination of the thoughts and ideas of a Muslim thinker, either in their entirety or in part. The analysis includes the internal and external context, the evolution of the ideas, the aspects that are given weight and those that are not, the merits and limitations of the

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<sup>75</sup> Ali Mansuri, *Teori Common Link G.H.A Juynboll Melacak Akar Kesejahteraan Hadits Nabi* (Yogyakarta: LKis, 2007). P. 10.

<sup>76</sup> Aholiab Watlol, *Tanggungjawab Pengetahuan: Mempertimbangkan* (Yogyakarta: Penerbit Kanisius, 2001). P. 43.

<sup>77</sup> Djamal, *Paradigma Penelitian Kualitatif* (Yogyakarta: Pustaka Pelajar, 2017).p. 9.

<sup>78</sup> Wahyudin, "Inkorporasi Pemikiran Nurcholis Madjid Tentang Pluralisme Agama Dalam Pendidikan Islam," (UIN Sunan Kalijaga, 2009).p.22.

individual's thought, and its impact on his era and the period that followed.<sup>79</sup>

Syahrin's quotation from Bekker illustrates that character evaluation is integral to historical research. The ontology of character study is derived from the descriptive-analytical approach, which involves re-describing the data collected and analyzed to form a comprehensive picture. This research aims to study individuals' thoughts and ideas. Therefore, the study seeks to analyze Osman Bakar's critique of contemporary science using various analytical approaches often used in character studies:<sup>80</sup>

**a. Induction and Deduction**

An analysis will be carried out on the examples and components of Osman Bakar's ideas. The findings of this analysis will be turned into a generalization or general statement using the induction process. The deduction technique is a systematic approach used to investigate and implement conceptual ideas of a broad nature.<sup>81</sup>

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<sup>79</sup> Syahrin Harahap, *Metodologi Studi Tokoh Penulisan Biografi*, Jakarta, Prenada Media Grup, 2011, p. 5.

<sup>80</sup> Dinar Dewi Kania, *Pemikiran Epistemologi Syed M. Naquib Al- Attas dan Fritjhof Schuon*, Ponorogo, UNIDA GONTOR PRESS, 2018, p.83.

<sup>81</sup> Nur Sayidah, *Metodologi Penelitian (Disertai Dengan Contoh Penerapannya Dalam Penelitian)*, Sidoarjo, Zifatama Jawara, 2018, P. 27-29.



### **b. Single- Holistic**

Cognitive processes should be considered holistically in terms of the constituent elements of thought and their interaction with the external environment. The concept of holistic provides a holistic perspective on the thinking of the person under study, often referred to as totalization, which refers to the seamless integration of thoughts into a whole.<sup>82</sup>

### **c. Historical Continuity**

When studying a character's ideas, finding out what underlying relationship connects them is important. To comprehensively understand this research, it is necessary to analyze both the internal and external backgrounds. The internal background will analyze Osman Bakar's history, educational background, influences received, interactions with peers, and any factors that influenced his second professional experience. The internal context also examines and records his internal development through the stages of his thinking, including any related changes. The external context examines the conditions of Osman Bakar's era, including intellectual, cultural, and political dimensions.

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<sup>82</sup> Dudi Iskandar, *Metodologi Penelitian Kualitatif Petunjuk Analisis Untuk Praktik Penelitian Lapangan, Analisis Teks Media, dan Kajian Budaya*, Pati, Maghza Pustaka, 2021, P. 123.

## **J. Research Procedures**

This research has been structured and conducted according to the sequential stages that are often followed in research:

### **a) Design of The Research**

Formulating research questions, giving the background to the research, and describing the methodology used to address the questions raised in the formulation. Develop a research proposal outlining these elements.

### **b) Data Collection**

Gathering relevant secondary and primary data of the study inquiry, namely the critique of modern science presented by Osman Bakar. The data include books authored by the individuals under study, scientific reports, papers, images, or other scientific material on the person's theories in the Islamic science domain.

### **c) Reading And Classification of Data**

The collected data or texts are thoroughly examined to identify concepts or thoughts related to the study proposal's questions. The data is

then organized and categorized into more precise sections or groups to streamline the process of data interpretation and analysis.

#### **d) Statistical Interpretation and Analysis of Data**

Following the process of sorting and categorization, the subsequent task is to analyze and understand the data and material about Osman Bakar's Reconstruction of Islamic Science. The collected data or texts are then examined and contrasted to identify commonalities and disparities in concepts between the two, which may address the study questions.

#### **e) Composing the Study Report**

The findings obtained throughout data interpretation and analysis are then used to formulate conclusions and suggestions. After completing all the necessary procedures and stages, the research report is subsequently organized and presented methodically and informally, following the established guidelines of scientific writing for thesis reports.

### **H. System of Study**

To facilitate the discussion of the problems in this thesis, the researcher divides it into several chapters, and each chapter has sub-chapters, which are listed below:

**CHAPTER 1 INTRODUCTION.** The background of the study, problem formulation, purpose, and significance, as well as the literature

review, theoretical framework, research methodology, discussion systematic, and system of study, are also included.

**CHAPTER 2: BACKGROUND OF OSMAN BAKAR'S THOUGHT.** This chapter has four sub-chapters that try to explain broadly: first, Osman Bakar's life, Malaysia's Socio-Political Environment, his performance at IIT institutions, and last, a book review of Osman Bakar's Work.

**Chapter 3: OSMAN BAKAR'S VIEW OF THE CRISIS IN CONTEMPORARY SCIENCE.** This Chapter has three sub-chapters that try to explain broadly: Epistemological Crisis, Axiological Crisis, and Military Effects of Science and Technology Use.

**CHAPTER 4: THE FUNDAMENTAL STRUCTURE OF ISLAMIC SCIENCE BY OSMAN BAKAR.** This Chapter contains the analysis and research results. So, two main discussions will answer all the problems in the formulation. *The First Part discusses Tawhid and Science from Osman Bakar's Perspective, thoroughly describing the topic. 1) The Meaning of Tawhid, 2) The Meaning of Science, 3) The Correlation between Tawhid and Science. The second part discusses The Realization of Tawhidic Science in 1) the Ontology aspect, 2) In Epistemology Aspect, 3) In Axiology Aspect, 4) in Methodology Aspect.*

**CHAPTER 5: CLOSING.** This Chapter will summarize some of the problems discussed in the previous chapter. In addition, this chapter will provide conclusions and suggestions.

