



Wahbah Az-Zuhaili's Interpretation of the Iron Verses and Their Relevance to the Development of Modern Science

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Abstract

This study aims to analyze the thoughts of Wahbah Az-Zuhaili in Tafsir Al-Munir regarding verses about iron and its relevance to the development of modern science. The study focused on four groups of verses, namely Surah Al-Isra': 50, Al-Kahf: 96, Saba': 10-11, and Al-Hadid: 25, which were selected based on their relationship with the theme of metal materials, the process of processing iron, the strength of materials, and their useful function for human life. This research uses a qualitative approach with library research and thematic analysis (maudhu'i). To minimize subjectivity in connecting interpretation and science, this study limits the analysis to conceptual and correlative aspects, not to claims of direct scientific proof of Qur'anic verses. The data was analyzed through the interpretation of the text of the interpretation of Wahbah Az-Zuhaili which was then compared contextually with scientific findings in the field of modern metal materials and technology. The results of the study show that Wahbah Az-Zuhaili's interpretation of iron verses contains functional meanings related to the strength, flexibility, and use of metals in human life. The concept has relevance to the development of modern technologies, although the relationships found are inspiring-conceptual, not scientific causality. This study concludes that the verses about iron in the Qur'an can be understood as a source of ethical-intellectual value and inspiration in the development of material science and technology, as well as showing the contribution of the integrative interpretation of Wahbah Az-Zuhaili in building a dialogue between Islamic studies and modern science.

Keywords: Modern Science; Tafsir Al-Munir; Wahbah Az-Zuhaili

Abstrak

Penelitian ini bertujuan untuk menganalisis pemikiran Wahbah Az-Zuhaili dalam Tafsir Al-Munir mengenai ayat-ayat tentang besi serta relevansinya dengan perkembangan sains modern. Kajian difokuskan pada empat kelompok ayat, yaitu Surah Al-Isra': 50, Al-Kahf: 96, Saba': 10-11, dan Al-Hadid: 25, yang dipilih berdasarkan keterkaitannya dengan tema material logam, proses pengolahan besi, kekuatan material, dan fungsi kemanfaatannya bagi kehidupan manusia. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi pustaka (library research) serta analisis tematik (maudhu'i). Untuk meminimalkan subjektivitas dalam menghubungkan tafsir dan sains, penelitian ini membatasi analisis pada aspek konseptual dan korelatif, bukan pada klaim pembuktian ilmiah langsung terhadap ayat Al-Qur'an. Data dianalisis melalui interpretasi teks tafsir Wahbah Az-Zuhaili yang kemudian dibandingkan secara kontekstual dengan temuan ilmiah dalam bidang material dan teknologi logam modern. Hasil penelitian menunjukkan bahwa penafsiran Wahbah Az-Zuhaili terhadap ayat-ayat besi memuat makna fungsional terkait kekuatan, fleksibilitas, dan pemanfaatan logam dalam kehidupan manusia. Konsep tersebut memiliki relevansi dengan perkembangan teknologi modern, meskipun hubungan yang ditemukan bersifat inspiratif-konseptual, bukan kausalitas ilmiah. Penelitian ini menyimpulkan bahwa ayat-ayat tentang besi dalam Al-Qur'an dapat dipahami sebagai sumber nilai dan inspirasi etis-intelektual dalam pengembangan sains dan teknologi material, sekaligus memperlihatkan kontribusi tafsir integratif Wahbah Az-Zuhaili dalam membangun dialog antara kajian keislaman dan ilmu pengetahuan modern.

Kata Kunci: Sains Modern; Tafsir Al-Munir; Wahbah Az-Zuhaili

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INTRODUCTION

Iron is the primary element that dominates the earth's structure as well as the main pillar of human civilization.¹ In the variety of weapons mentioned in *the Surapati Chronicle*, at that time weapons were widely used by soldiers and the community as self-protection and the main defense tool in iron-based warfare. Based on records in *the Surapati Chronicle*, there are various types of weapons used to conquer opponents including, swords, mace, rifles along with bullets, arrows, spears, daggers, and cannons. Historically, the types of weapons used had different characteristics in each kingdom, which shows the variation in military power in that era.² As one of the metal elements with significant abundance in the earth's crust, iron is generally found in the form of ores, which are minerals that are compounded with other elements such as oxygen and sulfur. The presence of iron in nature is predominantly found in the form of hematite, magnetite, and siderite minerals.³ The process produces iron metal which is the main raw material for industry 4.0, iron is widely contextualized as a basic component in infrastructure, machinery, maritime transportation, automotive, and household appliances.⁴ The hard and strong nature of iron makes it a physical means to uphold justice and crack down on offenses that threaten the stability of the country. The manifestation of these properties of iron is now expanding exponentially into the heavy equipment industry and precision technologies in complex infrastructure. This includes the installation of skyscrapers, macro-scale economic facilities, the railway, shipping, automotive, and aerospace industries. In the advancement of the 4.0 technological dimension, iron is no longer just a manual tool, but a crucial material for the global manufacturing system as well as the main means in maintaining the sovereignty and supremacy of national defense.⁵

This phenomenon is in line with *the Tafsir Al-Munir* in Surah Al-Hadid verse 25 that iron has various benefits and uses for humans. They use iron for various purposes in their lives, such as for tableware, installations and household appliances, to build buildings and buildings, facilities, facilities and infrastructure of economic life, agricultural tools, industrial tools for peace and war purposes, both light equipment industry and heavy equipment industry, armaments, railways, shipping, aircraft, cars and so on. The word *Al-Hadiid* (iron) indicates the restraint and controlling power to ensure the realization of the shari'a laws among Muslims and those who coexist with them in a state. Also, to wage jihad against the enemy parties who

¹ Desy Kurniasari et al., "Integrasi Nilai-Nilai Keislaman Pada Reaksi Redoks Dan Elektrokimia Terhadap Rahasia Kekuatan Benteng Besi Iskandar Zulkarnain," *Walisongo Journal of Chemistry* 2, no. 1 (2019): 28, <https://doi.org/https://doi.org/10.21580/wjc.v2/2.3875>.

² Asti Rahmawati Maulidah and Rafi Akbar Putra Purwanto, *EKSISTENSI SENJATA TRADISIONAL DALAM BABAD SURAPATI DAN PERANAN UNSUR KEBUDAYAAN YANG MENDASARINYA*, 20, no. 3 (2024): 102.

³ Imam Amrusi Jailani, "Kontribusi Ilmuwan Muslim Dalam Sains Klasik," *Jurnal Studi Islam Dan Sains* 29, no. 1 (2024): 183.

⁴ Sovian Aritonang et al., "CAMPURAN UNSUR ADHETIVE PADA BAJA ALLOY SEBAGAI BAHAN DASAR SISTEM KEKERASAN PELINDUNG KENDARAAN LAPIS BAJA," *Jurnal Pertahanan & Bela Negara* 9, no. 2 (2019): 81–105.

⁵ Muhammad Roihan Daulay and Sri Afni, "Al Qur'an Sebagai Sumber Ilmu Pengetahuan," *AL-MURABBI: Jurnal Pendidikan Agama Islam* 1, no. 1 (2023): 107, <https://doi.org/10.47498/bashair.v1i2.844>.

commit violations and attacks on the sanctity and honor of religion and Islamic lands, as well as to hinder and hinder the spread of Islam in the world.⁶

One of the monumental works that provides space for the exploration of the meaning of iron (*hadiid*) is *Tafsir Al-Munir* by a contemporary *Mufasssir*, Wahbah Az-Zuhaili. This book was chosen as the main source in this study because it is one of the superior contemporary interpretations with a comprehensive approach in the interpretation of the Qur'an.⁷ As emphasized in the introduction to the first volume of the latest edition, Wahbah states that,

"The reasons are obvious to everyone who compares this interpretation with the interpretations that have appeared before, both the old (complete, intermediate, and concise) or the new ones that have various methods. This commentary is comprehensive, complete, covering all the aspects needed by the reader, such as language, i'raab, balaaghah, history, interpretation, the establishment of law, and the deepening of knowledge of religious law, in a balanced way in explaining the explanation and not deviating from the main topic. In this print I affirm my method in tafsir: compromising between ma'tsur and ma'qul; The ma'tsur is the narration of the hadith of the Prophet and the words of the salafush-salih, while the ma'qul is in line with the rules that have been recognized, and prioritizes the tafsir maudhu'i (thematic), which is to mention the interpretation of verses of the Qur'an related to the same theme"⁸

This study uses *the maudhu'i* approach to examine the word *hadiid* as the main topic studied. The next step includes tracking and collecting verses that are relevant to the topic, as well as arranging the verses chronologically by prioritizing the Makkiyah verses before the Madaniyah verses. In addition, the researcher needs to identify (*reasonable*) correlations between verses, complement the discussion with related hadiths, and examine the verses thematically and comprehensively. This process is carried out by gathering verses of the same meaning, compromising the general (*'amm*) and special (*khash*) meanings, as well as *muthlaq* and *muqayyad*.⁹

Although studies of iron elements are abundantly available, there is an analytical gap in mapping the correlation between the narrative of revelation and modern technical reality. Previous literature tends to present scientific data and interpretive literature separately, through the lens of Science Interpretation (*'Ilmi*), so there have been no studies that specifically use *Tafsir Al-Munir* to dissect the systemic link between the properties of iron materials and current technological evolution. This gap causes the understanding of iron in the Qur'an to

⁶ Wahbah Az-Zuhaili, *At-Tafsirul-Munir: Fii 'Aqidah Wasy-Syarii'ah Wal Manhaj Jilid 14* (Jakarta: Gema Insani 2013, 2013).

⁷ Yazril and Syamsu Syauqani, "Analisa Tafsir Al-Munir Karya Syekh Wahbah Az-Zuhaili Yang Memiliki Pendekatan Komprehensif Dalam Penafsiran Al-Qur ' an," *J-CEKI: Jurnal Cendekia Ilmiah* 4, no. 2 (2025): 1130.

⁸ Wahbah Az-Zuhaili, *At-Tafsirul-Munir: Fii 'Aqidah Wasy-Syarii'ah Wal Manhaj Jilid 1 (Juz 1-2)* (Jakarta: Gema Insani 2013, 2013).

⁹ Aldomi Putra, "Metodologi Tafsir," *Jurnal Ulunnuha* 7, no. 1 (2018): 55.

often stop at the philosophical aspect, without touching on the technical dimensions relevant to the development of the manufacturing industry today.

The urgency of the study of Wahbah Az-Zuhaili's interpretation of iron verses and its relevance to the development of modern science is the fundamental foundation of this research. Through the integration of *the bi al-ma'tsur* and *bi al-ra'yi* methods and *the maudhu'i approach*, this research offers a new perspective in a more comprehensive study of the Qur'an. The significance of this study is not limited to the disclosure of Az-Zuhaili's interpretation of Surah Al-Isra' verse 50, Al-Kahf verse 96, Saba' verse 10-11, and Al-Hadid verse 25, but also dissects the thematic relationship of iron elements (*hadiid*) which represent the mechanical properties of hard and strong iron, its significant contribution to the progress of civilization, and It is a crucial material for the global manufacturing system as well as the main means of maintaining the sovereignty and supremacy of national defense.¹⁰

The purpose of this study is to analyze the interpretation of Wahbah Az-Zuhaili regarding iron verses through the integration of *the methods of bi al-ma'tsur* and *bi al-ra'yi* with *the maudhu'i approach* in *Tafsir Al-Munir*, as well as its relevance to the development of modern science. This analysis is expected to contribute to the understanding of the iron element as a manifestation of *Kalamullah*, as well as offer a resolution to the limitations of interpretation that arise within the framework of modern thought. The novelty in this research lies in three main aspects. First, the application of the discussion framework of *Tafsir Al-Munir* which consistently integrates the *bi al-ma'tsur* and *bi al-ra'yi methods through the maudhu'i approach* in dissecting the theme of iron materials (*hadiid*). Second, the use of *Tafsir Al-Munir* as a primary source to explore the technical dimensions of iron elements that have not been widely mapped in similar studies. Third, it represents the mechanical properties of hard and strong iron, its significant contribution to the progress of civilization, so that it becomes a crucial material for the global manufacturing system as well as the main means of maintaining the sovereignty and supremacy of national defense.

RESEARCH METHOD

The method used in this study is qualitative research with a descriptive-analytical type of library research.¹¹ The formal object of the research is focused on the interpretation of Wahbah Az-Zuhaili in *Tafsir Al-Munir* regarding iron verses, so this study does not use other mufasir as the main comparison, but focuses on identifying the characteristics and integrative patterns of interpretation of Wahbah Az-Zuhaili. The primary data sources of the research come from the Qur'an and *Tafsir Al-Munir*, while secondary data are obtained from scientific literature relevant to the fields of materials science, metallurgy, and modern manufacturing technology. The selection of modern science references is limited to academic sources that are directly related to the theme of the properties of iron materials, the processing of metals, and their use in contemporary technology, in order to avoid expanding interpretations that are speculative or confirmative biases.

¹⁰ Daulay and Sri Afni, "Al Qur'an Sebagai Sumber Ilmu Pengetahuan."

¹¹ Michael Stausberg and Steven Engler, eds., *The Routledge Handbook of Research Methods in the Study of Religion*, 0 ed. (Routledge, 2013), <https://doi.org/10.4324/9780203154281>.

Data collection was carried out through documentation techniques on interpretive texts and related scientific literature, while interpretive observation was used to understand the conceptual relationship between verse interpretation and the context of modern scientific development.¹² This research uses a thematic approach (*maudhu'i*) with operational procedures that include: (1) inventory of verses that have a substantial connection with the theme of iron; (2) determination of the focus of the verse based on material aspects, functions, and utilization; (3) analysis of the linguistic context, *asbab al-nuzul*, and reasonableness of the sentences; and (4) categorization of the meaning of the verse according to the research theme. The four verses chosen, namely *Surah Al-Isra'* verse 50, *Al-Kahf* verse 96, *Saba'* verses 10–11, and *Al-Hadid* verse 25, were determined based on the theme's representation of the nature of iron, metal processing technology, material protective function, and the strategic role of iron in human life. In the interpretation stage, the research integrates the *bi al-ma'tsur* and *bi al-ra'yi* approaches. The *bi al-ma'tsur* approach is used through tracing the meaning of the verse based on the history, linguistic context, and explanation of the classical interpretation quoted by Wahbah Az-Zuhaili, while the *bi al-ra'yi* approach is used in a limited way to read the conceptual relevance of the verse to the development of modern science. To avoid anachronistic and speculative interpretations, this study limits the relevance of modern science to conceptual and correlative aspects only, not as a claim that the Qur'an directly contains modern scientific theories.

Data analysis techniques are carried out through data reduction, thematic categorization, textual interpretation, and interdisciplinary critical analysis between interpretation and material science.¹³ The validity of the data is strengthened through triangulation of sources by comparing interpretive data, academic literature, and relevant scientific concepts in order to obtain a more objective and methodological understanding construction. With this approach, the study seeks to explain the relevance of the interpretation of Wahbah Az-Zuhaili to iron verses in the context of the development of modern science in a measurable, systematic manner, and remains within the epistemological limits of interpretation studies.

RESULTS AND DISCUSSION

The Denial of the Polytheists on the Day of Resurrection and the Objection Against Them

Wahbah Az-Zuhaili explained in his work *Tafsir Al-Munir, "Say (Muhammad). Be ye stone or iron," (Surah Al-Isra':50)* that the polytheists deny the day of resurrection and the day of return of mankind, when they heard the Qur'an and heard about the day of resurrection, they asked in a tone of denial, "if we have become bones that are broken in the grave and become earth after the bones have been destroyed and become dust, will we be resurrected on the Day of Resurrection after our bodies have been destroyed and we have become nothing, no longer whole and new creatures as they were before death? Allah SWT commanded His

¹² Hannah Snyder, "Literature Review as a Research Methodology: An Overview and Guidelines," *Journal of Business Research* 104 (November 2019): 333–39, <https://doi.org/10.1016/j.jbusres.2019.07.039>.

¹³ Glenn A. Bowen, "Document Analysis as a Qualitative Research Method," *Qualitative Research Journal* 9, no. 2 (2009): 27–40, <https://doi.org/10.3316/QRJ0902027>.

Prophet to answer by saying, *قُلْ كُونُوا حِجَارَةً أَوْ حَدِيدًا* meaning, *Say to them, O Muhammad, "Indeed, raising the dead is an easy thing"*. It is lighter with God than the first creation." It means that it is easier in our image and mind as humans. Because creating anything for Allah is easy under all conditions.

In our minds, if the elements of matter that make up an object and the characteristics of each of them have been discovered, it is easy to create the same things with them. If you, O polytheists, are something that is very far from life and much harder than stone or iron because they are more difficult to accept the elements of life than bones and earth or anything that according to your image and reason cannot accept life, such as the heavens, the earth and the mountains, surely Allah is Almighty to revive and resurrect it. Because all inanimate objects have the same potential to receive life or reason. If such acceptance or possibility does not exist, then there is no reason and life in Him and Allah Almighty for all that is possible. And Allah is All-Knowing of all the smallest parts (*juz'iyat*) Because restoring life to those parts of matter is something that can definitely happen, either after it becomes bone or crumbles into soil, or becomes something that in our mind is too far away to accept life, that is, when it becomes stone or iron. It falls under the category of *al-mubaa'laghah* (hyperbole) and relates various things to the highest image that shows the power of Allah SWT in reviving and restoring.¹⁴

Kisah Dzulqarnain

Wahbah Az-Zuhaili explained in *Tafsir Al-Munir* volume 8 that Dzulqarnain asked for the help of strong men and building tools and then he would build a strong and strong fortress to prevent them (the Ya'juj and Ma'juj) from coming to you. Dzulqarnain then explained what he meant by *Al-Quwwah* (power or energy) in his words,

أَتُونِي زُبَرَ الْحَدِيدِ حَتَّى إِذَا سَاوَى بَيْنَ الصَّدَفَيْنِ قَالَ انْفُخُوا حَتَّى إِذَا جَعَلَهُ نَارًا قَالَ آتُونِي أُفْرِغَ عَلَيْهِ قِطْرًا (سورة الكهف: 96)

Give me pieces of iron!" Until when the iron was evenly matched to the two mountains, he said, "Blow (the fire)!" When it had become (red as) fire, he said, "Give me copper (that boils) so that I may pour it (hot iron)."

After the people presented the pieces of iron, Dzulqarnain began to use them to build between the two mountains. He placed a piece of iron on top of another piece of iron from below. Until the building was as high as the top of the two mountains and covered the distance between them, he said to the workers who helped him, "Blow these pieces of iron with a blowing device until they are all lit. Then pour the molten copper on the heated iron, and they will all come together and become a solid hill, and the holes between the irons will be closed."¹⁵

The Blessings of Allah SWT on the Prophet David (AS)

وَلَقَدْ آتَيْنَا دَاوُودَ مِنَّا فَضْلًا يَا جِبَالُ أَوِّبِي مَعَهُ وَالطَّيْرُ وَأَلَنَّا لَهُ الْحَدِيدَ (10) أَنْ اغْمِلْ سَابِغَاتٍ وَقَدِّرْ فِي السَّرْدِ وَاعْمَلُوا صَالِحًا إِنِّي بِمَا تَعْمَلُونَ بَصِيرٌ (سورة سبأ: 11)

"And indeed, We have given Dawud a gift from Us. (We say) "O mountains and birds! Recite the blessings again and again with Dawud," and We have softened the iron for him (i.e., make a large armor and measure the weaving and do good deeds). Verily, I see what you do." (Surah Saba': 10-11)

¹⁴ wahbah Az-Zuhaili, *At-Tafsirul-Munir: Fii 'Aqidah Wasy-Syarri'ah Wal Manhaj* Jilid 8 (2013).

¹⁵ wahbah Az-Zuhaili, *At-Tafsirul-Munir: Fii 'Aqidah Wasy-Syarri'ah Wal Manhaj* Jilid 8.

In Tafsir Al-Munir Wahbah Zuhaili explained that وَلَقَدْ آتَيْنَا دَاوُودَ مِنَّا فَضْلًا يَا جِبَالُ أَوِّبِي مَعَهُ وَالطَّيْرُ Allah informed what He had bestowed upon His Messenger Dawud in the form of a tangible gift that He had given Him. Allah SWT bestowed upon Prophet Dawud a combination of prophethood and a large and powerful kingdom and an army. Allah SWT also bestowed upon the Prophet Dawud a beautiful, melodious, authoritative voice and very strong in the effects and impressions he created. This makes every time he prays, the big and strong mountains and the birds that pass by and go home and go join in the chanting of the prayer beads with him in various languages. The meaning is that We have indeed bestowed upon the Prophet David great gifts and great blessings. So We said to the mountains and the birds, "Echo the beads with the Prophet David when he recites the rosary." In Saheeh Bukhari it is narrated that the Prophet PBUH heard the voice of Abu Musa al-Ash'ari reading the Qur'an at night, then he stopped and listened to its recitation, then he said: *"sungguh orang ini benar-benar telah diberi salah satu dari suara merdu Nabi Dawud a.s."*

وَأَلَّنَا لَهُ الْحَدِيدَ أَنْ أَعْمَلَ سَابِغَاتٍ وَقَدَّرَ فِي السَّرْدِ That is and We made iron soft in the hands of the Prophet David so that he could make and shape whatever he wanted with the iron without the need for fire or hammer, but he was enough just by bending it like knitting a thread to make a perfect and large halkah or armor that could protect the body from impact. gunfire and weapon slash in war. Allah SWT taught the Prophet Dawud how to knit armor or halkah clothes, that is, the size of the halkah or knitted should be proportional and in accordance with needs, not too small and narrow which makes it unable to function as it should, nor too big which will be burdensome for the wearer.

There is no doubt that the use of iron to bend without the need for fire and hammer was a miracle of Prophet Dawud that could not have happened in the hands of anyone but him, Prophet Dawud was a pioneer in the manufacture of armor. Qatadah said that previously, armor was in the form of very heavy iron sheets. Therefore, the Prophet Dawud was instructed to make armor with a knitted pattern and size that met two elements, namely lightweight, but strong. So, don't just favor strong elements because that will make the armor too heavy. But don't overemphasize the lightweight element because it will make the armor too fragile and fragile so that it cannot provide maximum protection.

وَاعْمَلُوا صَالِحًا إِنِّي بِمَا تَعْمَلُونَ بَصِيرٌ i.e. and do righteous deeds, O family of the Prophet Dawud in connection with the various blessings that I have given you, use and take advantage of them to do righteous deeds. For verily I am always watching over you, the All-Seeing and the All-Knowing, all your deeds and sayings, without any of them being hidden from Me, nor beyond My vision and knowledge.¹⁶

The Constitution of the Islamic Society and the System of Government

قَدْ أَرْسَلْنَا رُسُلَنَا بِالْبَيِّنَاتِ وَأَنْزَلْنَا مَعَهُمُ الْكِتَابَ وَالْمِيزَانَ لِيَقُومَ النَّاسُ بِالْقِسْطِ وَأَنْزَلْنَا الْحَدِيدَ فِيهِ بَأْسٌ شَدِيدٌ وَمَنَافِعُ لِلنَّاسِ وَلِيَعْلَمَ اللَّهُ مَنْ يَنْصُرُهُ وَرُسُلَهُ بِالْغَيْبِ إِنَّ اللَّهَ قَوِيٌّ عَزِيزٌ (سورة الحديد: 25)

"Verily, We have sent Our Messengers with clear proofs and We have sent down with them the Book and the balance (of justice) so that mankind may be just. And We created

¹⁶ Wahbah Az-Zuhaili, *At-Tafsirul-Munir: Fii 'Aqidah Wasy-Syarii'ah Wal Manhaj* Jilid 11 (2013).

iron which has great power and many benefits for mankind, and so that Allah may know who helps Him and His Messengers even though they do not see it. Indeed, Allah is Mighty, Mighty." (Surah Al-Hadiid: 25)

Wahbah Az-Zuhaili explained that indeed, We have indeed sent angels to the prophets with revelations, and sent prophets to their people to convey revelations, with various forms of tangible miracles, clear shari'ahs, evidences and arguments that are strong and undeniable. Together with the prophets, We also sent down the Book, which is a type of the Book that includes every heavenly book, such as the Torah, the Psalms, the Gospel, and the Qur'an. We also lower the balance sheet with them, namely legal justice. We command the prophets to uphold justice, so that mankind follows what they are commanded in the form of truth and justice, and that their lives are based on truth and justice. So that they also interact with each other fairly in all their affairs, both religious and worldly affairs. They are the guardians and bodyguards to ensure the realization and implementation of the laws, respect and uphold the shari'a and follow the apostles.¹⁷ We create iron together with mining and metal materials. We teach humans how to make them. We have also made the iron as a controlling whip for those who reject the truth and are 'inaad or arrogant and stubborn in rejecting the truth after the argument against him has been established. In the book *Al-Firdaus* it is narrated from Abdullah bin Umar r.a. from Umar bin al-Khattab r.a. that the Prophet PBUH said, "*Indeed, Allah SWT has sent down four blessings from the heavens to the earth, namely iron, fire, water, and salt.*"

In iron there are preventing, controlling and restraining powers, as well as various benefits and uses for humans.¹⁸ They use iron for various purposes in their lives, such as for tableware, utensils, installations and household appliances, to build buildings and buildings, facilities, facilities and infrastructure of economic life, agricultural tools, industrial tools for peace and war purposes, both light equipment industry and heavy equipment industry, armaments, railways, shipping, aircraft, cars and so on.

The word *Al-Hadiid* (iron) indicates the restraint and controlling power to ensure the realization of the laws of the Shari'ah among Muslims and those who coexist with them in a state.¹⁹ Also, to wage jihad against the enemies who commit violations and attacks on the sanctity and honor of religion and Islamic lands, as well as to hinder and hinder the spread of Islam in the world. Therefore, the Prophet PBUH lived in Mecca for thirteen years since he was officially appointed as a Messenger. During this period he received revelations from the Makkiyyah surahs to improve and straighten the 'aqidah and morals, debate the polytheists, explain the principles of monotheism, and confirm the prophethood with various extraordinary miracles. Then, when the argument has been upheld against those who oppose,

¹⁷ Ayesha Omar, *The Pluralistic Frameworks of Ibn Rushd and Abdullahi Ahmed An-Na'im*, 1st ed. (Cambridge University Press, 2025), <https://doi.org/10.1017/9781009386333>.

¹⁸ Shashi Bhushan Kumar et al., "Iron Deficiency Anemia: Efficacy and Limitations of Nutritional and Comprehensive Mitigation Strategies," *Nutrients* 14, no. 14 (2022): 2976, <https://doi.org/10.3390/nu14142976>.

¹⁹ Ira Saputra Milsih et al., "THE TERM AL-HADID IN CLASSICAL AND CONTEMPORARY INTERPRETATION (COMPARATIVE STUDY OF THE QUR'AN & ITS TAFSEER AND TAFSIR MAFATIHI AL-GHAIB)," *QiST: Journal of Quran and Tafseer Studies* 1, no. 3 (2022): 343-79, <https://doi.org/10.23917/qist.v1i3.2058>.

Allah SWT also shari'ats the hijrah and permits war to maintain the continuity of the 'aqidah, honor, and self-esteem of the Muslims, as well as to guarantee and ensure that the values of the teachings of the Qur'an are truly upheld.²⁰

The Relevance of the Interpretation of the Iron Verses to Modern Science

Empirically, bone fragments that have been destroyed and disintegrated are often seen as entities that are impossible to reintegrate back into life.²¹ However, from a theological perspective, Allah has absolute authority as *Al-Muhyi* (the Most Living) and *Al-Mumit* (the Most Deadly) to bring about the existence of nothingness. Thus, reconstructing previously logically created creatures is not a more difficult matter when compared to the process of human creation in the early stages.²² This is very coherent with the interpretation of Revelation: "*It is lighter for Allah than the first creation. It means that it is easier in our image and mind as humans. For creating anything for God is easy under all conditions.*"²³ According to research by Siti Atasyah Putri, this phenomenon refers to the condition of bones or all creatures that have died and been buried until they are transformed into harder materials such as stone or iron, which in modern terminology are known as fossils.²⁴ Where this is in line with the interpretive of Wahbah

"If you, O polytheists, are something that is very far from life and that is much harder than stone or iron because both are more difficult to accept the elements of life than bones and earth or anything that according to your image and intellect is impossible to accept, such as the sky, earth and mountains, indeed Allah is Almighty to revive and resurrect them."²⁵

Fundamentally, the mechanism of fossil formation including wood and bone fossils involves the process of chemical and physical permineralization over a long geological time span. The infiltration of mineral solutions into organic cells that then coat the decomposed parts results in the original methane being replaced by transitional minerals such as silica, quartz, and even metal elements.²⁶ Fossils are often found in fragile conditions due to discontinuity of the permineralization process, which is a phenomenon in which the organic matrix of bones has not been fully dissolved by the earth's minerals. Scientifically, this physical transformation represents the transition phase of biological tissue into a lithic structure that

²⁰ Az-Zuhaili, *At-Tafsirul-Muniir: Fii 'Aqidah Wasy-Syarri'ah Wal Manhaj* Jilid 14.

²¹ Jason R. Finley, "Expanded Taxonomies of Human Memory," *Frontiers in Cognition* 3 (January 2025): 1505549, <https://doi.org/10.3389/fcogn.2024.1505549>.

²² Supriyanto, "TEXT DYNAMICS AND CONTEXT: A DIALECTICAL MODEL OF THE QUR'AN AND REALITY," *Al-A'raf: Journal of Islamic Thought and Philosophy* XVI, no. 1 (2019): 62.

²³ wahbah az-zuhaili, *at-tafsirul-muniir: fii 'aqidah wasy-sharii'ah wal manhaj* volume 8.

²⁴ Siti Atasyah Putri, *The Relationship Between Religiosity of Islamic Values and Chemistry in Electrochemical Materials*, 01, no. 01 (2022): 17.

²⁵ wahbah Az-Zuhaili, *At-Tafsirul-Muniir: Fii 'Aqidah Wasy-Syarri'ah Wal Manhaj* Jilid 8.

²⁶ Sunarty Suly Eraku et al., "POTENTIAL OF FOSSIL TIMBER NATURAL RESOURCES IN THE GORONTALO AREA," *Journal of Natural Resources and Environmental Management* 7, no. 2 (2017): 172, <https://doi.org/10.19081/jpsl.2017.7.2.172>.

resembles a rock.²⁷ This geological phenomenon has significant theological relevance in *Tafsir Al-Munir* by Wahbah Az-Zuhaili, especially when contextualizing Surah Al-Isra' verse 50. This is in accordance with the implacable Az-Zuhaili (قُلْ كُونُوا حِجَارَةً أَوْ حَدِيدًا) And Allah is All-Knowing of all the smallest parts (*juz'iyat*) Because returning life to those parts of matter is something that can definitely happen, either after it has become bones or crumbled into soil, or it becomes something that in our mind is too far away to accept life, i.e. when it becomes stone or iron.²⁸

In the area between the two mountains, Dzulkarnain did something similar by traveling to the west and east. However, this area has more significant obstacles, namely communication barriers and threats of destruction from the Yakjuj and Makjuj.²⁹ This condition was overcome by the construction of a massive defensive wall between the two mountain peaks to block the Yakjuj and Makjuj.³⁰ Dzulkarnain initiated a collective collaboration to build a barrier wall by collecting pieces of iron, which were then processed through high-temperature heating until melted, then united with boiling copper castings. The construction produced a very strong defensive wall, so it could not be passed through or physically degraded. This strength is based on an electrochemical process, where the copper layer functions to coat iron which is useful to avoid damage. Through this mechanism, iron stability is maintained, corrosion is avoided, and has higher durability.³¹ Iron is also found in the hadith.

Narrated by Abdullah bin Yusuf Malik narrated to us from Yahya bin Sa'id that I heard Abu Hurairah (may Allah be pleased with him) saying; "I was commanded (to migrate) to a place whose attraction is more dominant than other places, namely the city of Medina, this city cleanses people (the wicked) as an iron forging tool removes rust from iron." (HR. (Bukhari No. 1738)

The hadith provides information about the phenomenon of corrosion in iron and metal restoration techniques through the process of extreme heating until it reaches the boiling point. The explanation of rusty iron and how it is handled has important relevance in the field of science, especially chemistry, which is beneficial to Muslims and scientifically accepted by scientists. In addition to these technical aspects, the text of the hadith also contains an explanation of the virtue of the city of Medina compared to other areas as the destination of the hijrah of the Prophet and his companions. Medina has the privilege of keeping Muslims from the negative influence of non-believers.³² At the end of the construction process,

²⁷ Leliek Agung Haldoko et al., "Fossil Consolidation Using Natural Resins," *Journal of Cultural Heritage Conservation* 14, no. 2 (2020): 59, <https://doi.org/10.33374/jurnalkonservasicagarbudaya.v14i2.244>.

²⁸ wahbah Az-Zuhaili, *At-Tafsirul-Munir: Fii 'Aqidah Wasy-Syarri'ah Wal Manhaj* Jilid 8.

²⁹ Faiz Karim Fatkhullah et al., "Gog and Magog (Yakjuj Wa Makjuj) Stories in Sundanese Manuscripts," *OKARA: Jurnal Bahasa Dan Sastra* 13, no. 1 (2019): 17, <https://doi.org/10.19105/ojbs.v13i1.2233>.

³⁰ Aan Handriyani, "KAIDAH MASLAHAH IN THE DEVELOPMENT OF SOCIETY FROM THE PERSPECTIVE OF THE QUR'AN - A STUDY OF THE INTERPRETATION OF THE STORY OF DZULQARNAIN IN SURAH AL-KAHFI," *Bina Ummat Fostering and Fortifying the Ummah* 8, no. 1 (2025): 80, <https://doi.org/https://doi.org/10.38214/jurnalbinaummatstidnatsir.v8i1.319>.

³¹ Kustomo et al., "Iron as a Chemical Element from the Sky: A Review of Science and the Qur'an," *Cakrawala: Journal of Islamic Studies* 17, no. 2 (2022): 103, <https://doi.org/10.31603/cakrawala.7389>.

³² Mimi Herman, "INTEGRATION AND INTERCONNECTION OF QUR'AN AND HADITH VERSES WITH CHEMICAL BONDS," *Education and Development* 9, no. 2 (2021): 324.

Dzulkarnain stated that the wall was a blessing of Allah SWT, but the structure would be destroyed into rubble when Allah's promise had arrived, because only Allah was able to destroy it.³³

The application of metal processing technology, as illustrated in Dzulkarnain's method, can be analyzed through two main manufacturing approaches: forging and *casting*. Forging is the process of forming metal using mechanical pressure to achieve the desired geometry. In the historical context, *Tafsir Al-Munir* explains that Dzulkarnain began this process with the installation of equal pieces of iron to the two mountain peaks. This assembly process resembles the initial stage in *open die forging*, where the material is positioned in such a way before being further processed through thermal manipulation.

According to research by Arila, it is explained that as one of the oldest manufacturing methods, the majority of this process is carried out at high temperatures (*hot working*). The success of this process is highly dependent on the initial heating stage, the material must achieve a homogeneous microstructure by keeping the temperature in the austenitic temperature range before deformation or fusion is performed. This is in line with Dzulkarnain's order to "blow" the piece of iron using a flame blower until it burns red. Scientifically, this stage aims to reach the austenitic phase so that the iron surface becomes highly reactive and clear of impurities (rust), so that it is ready to undergo perfect metallurgical bonding.³⁴ Although forging excels in creating structural integrity, the metal casting method is a crucial complement in Dzulkarnain's method to produce a monolithic structure without gaps. In *Tafsir Al-Munir*, it is stated that after iron heats up, molten copper is poured over it. This casting involves pouring molten metal into cavities between the iron arrays that serve as a frame as well as a "mold".³⁵

According to research by Seno Darmanto et al. The Mijil Karya Sanggarahan Rejosari Group, District, Magelang Regency, Central Java, has an iron pande industry group that still exists today, and the products include household appliances (boilers, plain pots, and patterned pots), weaponry (cages, swords, daggers, and spears), agricultural equipment (hoes and plows), and industrial cutting tools (kitchen knives, sickles, machetes, and other cutting tools). In addition, this sector also produces decorative and handicraft products, such as lamp holders and wall decorations. The improvement of work instrumentation aspects includes the provision of precision hand tools such as grazing (bench clamps), scrapers, grinders, drill bits, hand saws, plate scissors, files, hammers, steel bars, pliers, and soldering tools. In order to increase productivity, several equipment has been integrated with machine power, which includes chainsaws, drilling machines (hand and sitting), and grinding machines for both

³³ Siti Fatimah et al., *DI BALIK SIMBOLISME PESAN MORAL DZULQORNAIN DALAM AL-QUR'AN (ANALISIS SEMOITIKA RONALD BARTHES)*, 7, no. 1 (2024): 224.

³⁴ Armila, "The Hammer Beat of the Iron Craftsman of the Puar River Begins to Be Silent," *Rang Teknik Journal I*, no. 2 (2018): 155.

³⁵ Sudiman Lubis and Irpansyah Siregar, *PROSES PENGECORAN ALUMINIUM SEBAGAI BAHAN PEMBUATAN BLOK SILINDER*, 1, no. 1 (2020): 30.

cutting and finishing needs.³⁶ Epistimmologically, the processing of iron that is developing in the defense industry today is a form of applied technology implemented by the Prophet Dawud in the Qur'an Surah Saba' verses 10-11 which is very coherent with the interpretation of Wahbah in making halkah clothes or armor that can protect the body from hits, gunfire and weapon strikes in war.³⁷ During that time, iron could be melted into various war equipment such as armor, weapons, and other equipment. The discovery of iron sparked a major revolution in the history of human civilization.³⁸

According to research by Budi Suhartawan and Muizzatul Hasanah, modern materials have developed protective materials with lighter masses, which are then fabricated into various variants of protective clothing to adjust to the escalation of risks in contemporary warfare. Along with the increasing threat of terrorism and the use of firearms by criminals, the use of body *armor* is no longer limited to military units. This protection technology has been widely applied by police officers, security forces, and civilians who have a high risk of being targeted by attacks or enemies.³⁹

Clothing that is specifically designed to protect the body from the penetration of an opponent's weapon in battle is technically known as armor or body security systems. In military historical records, the use of steel-based equipment has been widely implemented, including by Imperial German forces during World Wars I and II.⁴⁰ Along with the escalation of projectile impact, the engineering of defense materials has now surpassed conventional methods that only increase the mass and thickness of metals. The latest technological sophistication lies in the use of smart materials and nanocomposites. Then according to research by Theofilus Lisia Okta Hertanto Sovian Aritonang and Riri Murniat, it was revealed that modern armor utilizes a combination of ceramic panels that are able to break projectiles at the time of impact, followed by a layer of aramid fibers that completely dampen kinetic energy. Furthermore, the development of Sliding Thickening Fluid allows armor to remain flexible like fabric when moving normally, but instantly turns very hard when hit by a bullet. This innovation creates the perfect balance between high levels of mobility and extreme physical endurance, which is a cutting-edge evolution of the principle of softening and strengthening metals that has been hinted at since the time of the Prophet David.⁴¹ Allah's command regarding the development of civilization at that time was realized through the

³⁶ Seno Darmanto et al., "Revitalization of Simple Furnaces for Metal Processing and Forming in the Pande Besi Industry," *Abdimas Journal* 22, no. 1 (2018): 82.

³⁷ Wahbah Az-Zuhaili, *At-Tafsirul-Muniir: Fii 'Aqidah Wasy-Syarri'ah Wal Manhaj* Volume 11.

³⁸ Budi Suhartawan and Muizzatul Hasanah, "Wawasan Al-Qur'an Tentang Teknologi (Kajian Tafsir Maudhu'i)," *ZAD Al-Mufasssin: Jurnal Ilmu Al-Qur'an Dan Tafsir* 5, no. 2 (2023): 195, <https://doi.org/DOI%20:%20https://doi.org/10.55759/zam.v5i2.78>.

³⁹ Basri et al., "Pendidikan Vokasi Perspektif Al-Quran," *Tarbiyatuna: Jurnal Pendidikan Islam* 15, no. 1 (2022): 93, <https://doi.org/https://doi.org/10.36835/tarbiyatuna.v15i1.1523>.

⁴⁰ Jari Eloranta et al., *The Routledge Economic History of War*, 1st ed. (Routledge, 2025), <https://doi.org/10.4324/9781003275275>.

⁴¹ Theofilus Lisia Okta Hertanto Sovian Aritonang and Riri Murniat, "The Effectiveness of Composites in Strengthening Bulletproof Vests," *Journal of Materials Engineering, Manufacturing and Energy* 7, no. 1 (2024): 160.

innovation of physical means of protection. This protective device can be in the form of a steel head cover as well as a bulletproof vest, which is evident established in this period.⁴²

CONCLUSION

In conclusion, this study demonstrates that Wahbah Az-Zuhaili's interpretation of the Qur'anic verses related to iron shows a significant relevance to the development of modern science and technology. Through the interpretation of Surah Al-Isra' verse 50, the study reveals that the process of fossil formation and mineral replacement can be scientifically understood through chemical and physical permineralization processes involving mineral infiltration into organic materials over long geological periods. In addition, the interpretation of the story of Dzulkarnain in Surah Al-Kahf reflects principles of modern metal processing technologies, particularly forging and casting methods, which are fundamental techniques in contemporary metallurgy and industrial engineering.

Furthermore, the interpretation of Surah Saba' verses 10–11 indicates the relevance of iron processing technology to the development of modern defense systems, including advanced armor technology that combines ceramic materials, aramid fibers, and Sliding Thickening Fluid technology. Meanwhile, Surah Al-Hadid verse 25 emphasizes the strategic role of iron as an essential material that supports various aspects of human civilization, ranging from industrial components to large-scale infrastructure development. The findings of this study indicate that the Qur'anic verses concerning iron are not contradictory to scientific development; rather, they demonstrate harmony between Qur'anic values and the advancement of science and technology for human benefit.

The contribution of this study lies in strengthening the discourse on the integration of the Qur'an and modern science, particularly in the fields of metallurgy, geology, and technological development. This research also contributes to the study of scientific interpretation (*tafsir 'ilmi*) by showing that Wahbah Az-Zuhaili's interpretation provides contextual insights that remain relevant to contemporary scientific progress. In addition, this study may serve as a reference for academics, researchers, and Islamic educational institutions in developing interdisciplinary studies that integrate Islamic scholarship and scientific knowledge. Based on these findings, it is recommended that future studies explore Qur'anic scientific interpretations through broader interdisciplinary approaches involving natural sciences, engineering, and technological studies. Further research is also needed to examine the practical implications of Qur'anic scientific values in the development of innovation, education, and modern civilization.

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⁴² Tarmizi Pane et al., "Manfaat Teknologi Bagi Mata Pembelajaran PAI Di Era Modern," *Jurnal Kajian Penelitian Pendidikan Dan Kebudayaan* 2, no. 2 (2024): 173, <https://doi.org/10.59031/jkppk.v2i2.398>.

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