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Research paper

Integrating and Inter-Connecting the Qur'an-Hadith and Science Education: a Study of *Madrasah Aliyah* Al-Imdad, Yogyakarta

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Abstract

It is interesting to criticize on how is the model and educational application of Qur'an Hadith with science look like. Integrative-interconnected education is an educational model which synchronizes and unites religious education and secular education. The Qur'an-Hadith as one of the disciplines taught in Madrasah has been influenced by the dichotomy dualism of education. The implication is that all things is merely viewed from two opposite angles. The further implications is that the understanding the Qur'an-Hadith tend to narrow an angle of meaning which focus on spiritual life, namely it is considered separated from worldly life. This article examines the process by which learning the Qur'an and Hadith are integrated with natural sciences in Madrasah Aliyah, Islamic Senior High School. I use Madrasah Aliyah Al-Imdad, located in Bantul, Yogyakarta, Indonesia, as a case study. The school is interesting, for it is directed only to deepen Islamic sciences.

Keywords: *Integrative-Inter-connected Education; Madrasah Aliyah; the Qur'an-Hadith*

1. Introduction

The notion of improving the quality of national education is increasingly promoted both with regard to public policy and learning methodology in the classroom. This is based on the assumption that the progress and development of education are determining factors for the success of a nation. Education is the process by which young generation are prepared to live in the future. If education is not well-developed misdirected, then output will not be able to perform its tasks in the future. In terms of the concept of education, new paradigms have been offered for the sake of achieving educational goals and expectations. This is imperative due to the rapid development of science and technology.

Integrative-interconnected education, a multi-dimensional model of education, links various aspects and levels. It constitutes the interdependence among branch of sciences, for there is no single discipline that stands alone. Arguably, one discipline is representing only one side of the complexity of human life. In other words, Integrative-inter-connected education is an educational model that seeks to unite between religious education and secular education. It doesn't separate between religious science and secular science(1).

The teaching of the Qur'an and Hadith in Madrasah has been influenced by the dualism view of education. This implies that all matters are seen from binary opposition view. Learning the Qur'an and Hadith has been considered that this has nothing to do with living in the world. Accordingly, learning the two in Madrasah is only about religious and spiritual matters, while economy, politics, science, technology are regarded as worldly affairs which are the field of secular education. From such a dichotomy, the term 'religious education' and 'secular education' are invented. In the context of Indonesia, the dichotomy between religious education and secular education is a legacy of Dutch colonialism (2).

Nonetheless, recently the slogan *IMTAQ* (*iman dan taqwa*), which is faith and piety, *IPTEK* (*ilmu pengetahuan dan teknologi*) which is science and technology, have been popular and served as educational vision and mission at many schools in Indonesia. Those who teach sciences are trained and encouraged to integrate religious values with any discipline. Yet, the Qur'an and Hadith teachers are not well-trained in science. Although the results of the training have not been measured, an attempt to integrate and link among various disciplines has become a trend in the atmosphere of education.

With regard to the integration, this article examines the process by which learning the Qur'an and Hadith are integrated with natural sciences in Madrasah Aliyah, Islamic Senior High School. I use Madrasah Aliyah Al-Imdad, located in Bantul, Yogyakarta, Indonesia, as a case study. The school is interesting, for it is directed only to deepen Islamic sciences.

2. Literature Review

In the context of this article, the relation between Islamic Education and natural science will be explored and examined. In addition, integrative and inter-connected paradigm of Islamic education addressed by several scholars also will be explored.

The way natural science is taught at Madrasah in Indonesia is influenced by the Dutch colonial education system, which at the time did not provide religious subjects in the core curriculum. Religious subjects were carried out outside the school and became the responsibility of family and society. Islamic education or subject was acknowledged to be a compulsory subject for all levels

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and a new type of education since MPRS Tap No. XXVII of 1966 was issued (3).

Natural science as a subject developed in the colonial education system was aimed to achieve the interest of the Dutch colonialists. They conducted natural science subject at school for the sake of providing indigenous human resource serving as a worker or labor for the Dutch. This is cheaper, indeed, than, bringing human resources directly from Netherland. Accordingly, the purpose of science education is to maintain and perpetuate imperialism in Indonesia, as opposed to Islamic values and ideals of the nation. Although Islamic education—teaching the Qur'an and Hadith—has been acknowledged to be a compulsory subject at the public schools of the Dutch heritage, religious and non-religious education remain problematic, for there is no any integration.

Science developed in modern world results in an ironic civilization. On one hand, human beings are able to realize their prosperity and dreams, but at the same time they are easily frustrated because of the fragile foundations of life. Modern human can build a skyscraper and make a grave for himself/herself at the same time. The earth is exploited and manipulated in order to fulfill needs of all human beings. Science developed from the foundations of philosophy of materialism has plunged people into unsatisfying life.

Due to the negative impact of science, some Muslim scholars address the concept of Islamization of science. The concept attempts to make the universal values and principles of Islam as a basis for developing science. Accordingly, science is dedicated to universal humanity and devotion to Allah. The idea of Islamization of science was pioneered by Sayyed Muhammad Naquib al-Attas and Ismail Raji al-Faruqi, to name but a few.

The idea of Islamization of science attains various responses from many scholars, particularly in Indonesia. Some scholars don't agree with the concept because science is universal and under the authority of God's law. For instance, Kuntowijoyo, a prominent Indonesian social scholar, argues that the term Islamization is not appropriate and should be abandoned. According to Kuntowijoyo, the concept of Islamization is inclined to be reactive. He then proposes three main ideas in relation to Islam and science. *First*, it is imperative to make Islam scientific in which it also takes into account social context and ecology. In doing so, we have to do a demystification, an attempt to eliminate myth in Islam. *Second*, the reality should be viewed through the Islamic paradigm derived from the Qur'an and Hadith. This is aimed to formulate theories. Many Muslims themselves are skeptical of the completeness of their religious teachings. They then study secular science coming from Western civilization. *Third*, the existentialism of the humanity of the Qur'an is important. For Kuntowijoyo, science is not only about narratives and rationality, but also self-experience.

Some scholars view that to implement the concept of Islamization of science is too complex. Therefore, they propose an alternative to overcome the complexity. They address the concept of integration and inter-connection between Islam and science or between religious science and secular science. This concept is considered to be more realistic and does not trigger reactive responses.

On the basis of the above understanding, integrating and interconnecting between the education of the Quran-Hadith and science serve as an educational model that unites between Islamic education subjects and science. For instance, Qur'anic materials on the creation of the universe, human being, and environment can be integrated with natural sciences in terms of teaching and learning.

The attempt to integrate and inter-connect between Islam and science is still developed up to the recent days. In Indonesia, A.M. Saefuddin proposes the concept of de-secularization as the way to implement Islamization of Science. According to Saefuddin, that natural science is not contrary to Islam and even part of Islamic sciences (4). Beside Saefuddin, among Indonesian scholars who concern with this issue are Hidajat Nataatmadja, (5) M. Imaduddin Abdulrachim, Achmad Baiquni, and A. Malik Fadjar. The ideas are further developed to the praxis and experimental level by later scholars such as M. Amin Abdullah, Imam Suprayogo, Djohar, and Kuntowijoyo.

Although the aforementioned scholars have their respective peculiarities in relation to Islam and science, they have the same goal. Arguably, they attempt to establish a united framework of thinking for Muslims by experiencing education. The integration between Islam and science has inspired many Muslim scholars such as Ibn Sina (Avicenna), al-Farabi, and Ibn Rushd (Averroes).

3. Methodology

This research is a field research that employs a qualitative research method, phenomenological approach, and a case study which are aimed to results in a descriptive analysis. Phenomenological approach constitutes the involvement of the researcher with the object of study. Meanwhile, the case study approach in education is an in depth study of all aspects related to education, including school environment, curriculum, and methods.

This study uses in-depth interview techniques to collect data or information related to the *madrasah*. The informants are the head master, staffs, and teachers. It also employs observation and documentation method. The use of documentation methods is aimed to collect descriptions through an existing document source, in terms of history, geography, vision and mission of the school, the ratio of the number of students and teachers, weaknesses, strengths, opportunities, the natural and social environment, challenges facilities, and other aspects that support learning activities, and books.

The analysis in this research is done by combining system called descriptive, comparative, and analytic methods. This is done by exposing the data that has been collected from the primary source. Meanwhile, to check the validity of the data requires triangulation of data, i.e. data checking techniques that utilize any other data for the purpose of checking or comparing the data.

4. Results and Findings

4.1. Integrating Islam and Science

In most Muslim countries, there is still a hierarchical vision of science which can be found in the traditional system of education. The leading Muslim intellectuals then propose a hierarchy of interconnectivity among disciplines of science. I would argue that understanding both the Qur'an and Hadith is insufficient if we don't take other disciplines into consideration. In this section, I address how Muslim scholars approach the issue of the relation between Islam and science in Islamic education.

Sayyed Hossein Nasr states that the chaos of the curriculum of modern education in most Muslim countries is caused by a hierarchical vision of knowledge, which is found in the traditional system of Islamic education. In fact, within the Islamic intellectual tradition, there is a hierarchy of interconnectivity among various disciplines, not only in the course of faith and religious experience, but also in the course of science and knowledge. The discovery of appropriate levels and relationships among different disciplines is an obsession of modern Muslim intellectuals. This subject is a key to the Islamic educational system in order to prevent contemporary Muslim educators from releasing the objective eyes of the chaos and ambiguities raging in the current educational curriculum, with a blind imitation of Western models which are vague if we compare with models in a Madrasah system (6).

The same uneasiness has been expressed by Ismail Raji al-Faruqi that the decline of Muslim civilization results from their carelessness to simply imitate foreign cultures. This imitation will not lead to the achievement of goals. Islamic views are blurred because of the other views we receive from the colonial conquerors. The spread of these foreign views is primarily through an education system that is divided into two branches, the first of which is the

"modern" system and the second is the "Islamic" system. Branching of this system is a symbol of the fall of the Muslims. If this is not addressed and eliminated, it will continue to undermine and thwart the struggle of the reformers pioneered by Sayyid Akhmad Khan and Muhammad Abduh in rebuilding the community (*ummah*) and to be able to carry out the trust that God has entrusted to them (7).

According to Faruqi, Muslim scholars should reform education by practicing the Islamization of modern knowledge. Every discipline must be rebuilt, based on new Islamic foundations, and the objective of Islamic principles. Every discipline has to be reconceptualized to reveal the relevance of Islam with the three axes of unity (*tawhid*). The first axis is the unity of knowledge. All disciplines must seek rational objectives and critical knowledge of the truth. Thus, there is no rational science and irrational science; that some disciplines are scientific and absolute while other disciplines are dogmatic and relative. The second is the unity of life. All disciplines must be aware of and devoted to the purpose of creation. The third is the unity of history. All disciplines have to serve as the purposes of the *umma* in history (8).

Robert D. Lec says that an attempt to search an authentic Islam have been made by several modern Muslim thinkers, namely Muhammad Iqbal, Ali Shari'ati, Sayyid Qutb and Muhammed Arkoun. Iqbal's authentic ideas were inspired by European and Islamic thought. He rejected both the conception of European progress and the pattern of contemporary Islamic culture in India. He also fought against colonialism, mysticism, and the monarchy regime. In a broad context, he called on all humans to awaken from traditional ways and Western ideas, and try to discover their own creativity, zeal and self-worth (9).

Sayyid Qutb can be equivalent to European thinkers and other ignorant authors for rejecting the dichotomy between Eastern mysticism and Western rationalism. According to Qutb, the autonomous Muslims can go through actions based on faith and will, forming an authentic Islamic community. He posed the question of how can man act in this world and remain self. How can man overcome his basic instincts for his spiritual qualities in a world filled with greed, self-interest, materialism and impersonal rationality? Can the spirituality be raised without having to retreat from the world? Qutb is considered radical, not because he denounces all existing Muslim rule, but because he speaks of the liberation of mankind from all that can hinder the realization of the potential that God has imposed on them.

Shari'ati had the same idea in finding authentic Islam. For Shari'ati, true Islam is revolutionary, and the "true" Shi'a "is a special kind of revolutionary Islam. The spiritual and temporal revolution that the Prophet Muhammad had started has turned into rituals, prayers and rituals. Knowledge of true Islam, according to Shari'ati, is approached by four methods: the history of Islam, especially the early days of Islam; the study of the contemporary world and its needs; familiarity with Islamic texts; and sensitivity to the most mystical elements of religion.

According to him, the Prophet Muhammad is a person who can combine mysticism and intellectual rigor with the sharpness of the sense of what is desired and required by the masses of the people. The ways the Prophet Muhammad acted were the revolutionary means of transforming life in Medina, then in Makkah and finally Arabia as a whole. Furthermore, for Shari'ati, the authentic act of man depends on rationality and irrationality at once, which means on the worldly and spiritual orientation. Being human means having a foothold in two worlds; a world of understandable reasoning, and another world that transcends Western reason.

The figure Lee considered as the author of authentic Islam was Muhammed Arkoun (1928-2010). Arkoun's radicalism is at a much sharper level than Iqbal, Shari'ati and Qutb. Authentic Muslims not only believe in shari'ah, but like the founding generation of Islam, interpreting acts upon it according to historical conditions. Arkoun spoke of the need to understand the "objective content" of the Qur'an in order to take advantage of all the positive achievements of all the findings of modern social science.

Arkoun called for building into a unified, nail tradition of Islamic experience. The Islam of the Muslim Brotherhood and the Islam of revolutionary groups is wrong not only because they fail to be the sole representative of true Islam as they crave, but also because they underestimate that Islamic tradition is one in all its diversity. Liberation was born from the reconstruction of the overall history of Islam. The problem is how to "reassemble the meaning of a terribly divided sphere". This is what he calls "the fact of the Qur'an." To him, there are certain axiological values in the Qur'an which are the main basis for Islamic discourse. The Qur'an forms the criteria that distinguish the negative value from the positive value. On behalf of God's command and the need for witnessing to Him and affirmation of the concept of Community and Law, the Qur'an builds a framework for thought and action. Islamic history can be viewed as a projection of this axiological at all times. Arkoun mentions that the "fact of the Qur'an" as a basis, as an intellectually separated from "the fact of Islam".

Similar efforts continue to this day, mentioning figures other than those mentioned above, such as M. Naquib Al-Attas with his original idea of "science de-westernization" and Ziauddin Sardar with the discourse of "Contemporary Islamic science"(10). Sardar's efforts are known as the *ijmali* movement, in a global or synthesis sense. Sardar's attempt aims to eliminate the dichotomy of science that is by placing epistemology and theory of educational system which are fundamental.

According to Bagir, both Al-Attas, Sardar, Al-Faruqi, and Nasr move primarily at the level of epistemology and a bit of metaphysics (except Al-Attas which enters deeply into the metaphysical region). The common disadvantage of these ideas is that they are philosophical ideas about science, and for a long time it is not clear how such philosophical ideas can be made relevant to practical scientific activity. This weakness has also made it easy, and has been misunderstood.

According to Rajasa, among Islamic thinkers there are at least two opposing camps, but have the same motivation (eliminating the dichotomy between religious knowledge and non-religious sciences), namely the Islamization of science camp developed by Al-Faruqi and the Islamic scholarly camp spearheaded by Kuntowijoyo (11). In this context Al-Faruqi aligns with Naquib Al-Attas who had earlier sparked the concept. The Islamization of science seeks to prevent Muslims from simply following external methods by returning the knowledge to its source, the unity of the source of knowledge that is God; unity of purpose of life that makes science full of value; and the unity of history means that knowledge must serve the people and mankind. As long as Muslims do not or do not yet have their own methodology, they will always be shaky and in danger of having no hold. Islamization of knowledge means restoring knowledge to the text. It means that knowledge can not be separated from faith. The thesis of Al-Faruqi and al-Attas can be called contextual textualization.

Muslim thinkers are not the opposite of the textualization concept of the context. Kuntowijoyo is one of the thinkers who disagree. So he offers the opposite paradigm, namely the contextualization of the text. Islam must be envisaged, should seek to develop the interconnection-integration paradigm along with its profit-earning net. He does not pursue the path of Islamization of science or Islamic scholarship.

According to Asifudin, these conceptual models basically have a fundamental underlying purpose of eliminating the dichotomy between religious science (Islam) and non-religious knowledge. This is in accordance with Fazlur Rahman's analysis through Sutrisno's study, Rahman argues that the most fundamental problem of Islamic education today is the problem of ideology, in the sense of Islamic ideology related to the importance of science. Muslims can not effectively link the importance of knowledge with its ideological orientation as a result they are not motivated and unconscious to seek knowledge.

The next problem is the dualism of the education system of Muslims as a result of the dichotomy of science. On one side there is a system of traditional education (Islamic religion) so left behind

that its products can not keep up with the times. On the other hand there is a modern (general) secular education that has developed without touching at all Islamic ideologies and values such as honesty and responsibility, resulting in tragic results. Thus, these two educational systems are equally unsound.

Rahman offers solutions by developing Muslim scientists. This is done by selecting potential young Islamic scholars by teaching them modern Western methodology. In particular, Rahman's way of educational reform to education in Pakistan includes four steps. First, revive the ideology of learning necessity and develop science. Second, integrate science for the benefit of mankind. Third, be aware of the importance of language, then develop it as a communication tool. Fourth, change the method of education by repeating and memorizing the method of understanding and analyzing.

4.2. The Implementation of Integrating the Qur'an-Hadith and Science at *Madrasah Aliyah* Al-Imdad Yogyakarta

In the existing *Madrasah Aliyah* (Islamic Senior High School) Al Imdad for example already has a clear concept of the importance of interconnection and integration. The concept of integration according to the leader of pesantren as well as teachers at the school said that interpretation is growing, so the source needs to be obtained from various aspects. In his revolutionary view he also argued that in essence integration is very important. However, understanding the religious teachings on this universe should be integrated with science. For example, explaining the creation of the universe, the explanation of the six periods, in the book (How the Universe Was Created, The Approach of the Qur'an and Modern Science, 2003), Marconi combines periods IV, V, and VI as the Third. Achmad Marconi then explains the sense of the time of the events of the universe as follows:

1. The First Time, the occurrence of 'Big Bang' (Big Bang). Time t = 0 to time t = 10 seconds, at the temperature of the universe or universe, reaches T = 10 K. At this temperature the Gravity force separates itself from the single force (Super force). Space Continuum The time of birth is still tangible, where energy and time space are not clearly different.
2. The Second Time, the Formation of 'Sub Cosmos' (Cosmos Soup). The end of the first period, until the temperature of the universe drops to T = 10 K. The Universe undergoes the Inflation process. Gravity arises as a statement of the existence of matter, and the forces of the nuclei break away from weak core forces and electromagnetic forces. Separation occurs at a temperature T = 10 K, at time t = 10 seconds. Fundamental Sub-atomic particles: quarks and anti-quarks, begin to form.
3. Third Time, synthesis of anti atom (Nucleosyntheses). The end of the second period, until the temperature of the Universe down to T = 10 K. At this time began the synthesis or the formation of atom nuclei. Quarks join each other, forming atomic nuclei, such as: protons, neutrons, mesons, and others.
4. Fourth period, the fourth stage starts from the end of the third period, until the temperatures of the universe is below 10K, the density of materu live a tenth of a kilogram of per meter. In this stage there is the possibility of clustering of fundamental matter, electrons start to form, but still in a state of freedom, and not yet bound by atomic nuclei.
5. The fifth period, the formation of stable atoms. This means that electrons begin to be bound by the nuclei of the atom, and there are stable atoms in the Universe. Separation of matter and radiation occurs, so the universe becomes translucent. Proto-galaxy begins to form.
6. Sixth period, the formation of Galaxies, stars, Solar System and Planet.

According to Habib, integration is indispensable even not only through the aspects of natural science alone as described above, but also to the social sciences and matters related to legal matters. Even Habib gives an example of the need for an anthropology and sociology approach. Anthropology and sociology become very important in looking at the Qur'an and Hadith because they are not revealed in a vacuous state of human, empty culture. For this reason, Habib is important to integrate it into a single unity of understanding. Habib also reminded that when the Qur'an was revealed and the explanation given by Muhammad made it easy for his ummah to digest the content of the Qur'an and the hadith conveyed by Muhammad. According to Habib according to the level of scientific progress that developed at that time. If the Prophet Muhammad and his companions were present in the midst of us at this time, then his understanding and his companions would be different from the current human understanding, because of the different scientific backgrounds that exist. Similarly Habib added his explanation.

The opinion of teachers in Al Imdad, Rohana explained that the concept of integration is to bridge the dichotomy between the science of religion with the development of social, cultural and scientific age. As a bridge it is not uncommon to feel the shortcomings. The existing dichotomy still sharply distinguishes between science and religion. According to Rohana in collaboration with scholars from various countries, various cultural, scientific, political and religious contexts are attempts to build different types of bridges for reasons that often differ between science and religion. Nevertheless, the joint task of building bridges provides a sense of conversation between different endeavors. Rohana mentioned that bridge builders in these contexts are interested in sharing insights with each other. They are interested in seeing each other's designs, trying equipment, testing materials and assessing each technique. While interested in proven and proven resources, they are also keen to provide input and revise these resources and develop appropriate materials for their respective projects.

Likewise learning by using integration between Al Qur'an Hadith and science is the medium of introducing the Qur'an in the framework of science. Rohana believes that in the Qur'an and Hadith are loaded with theories of science and science. For example (1) the theory of expending universe is described in the Qur'an letter Adz Dzariyat verse 47, (2) the sun is a glowing planet while the moon is a reflection of the sunlight described in the Qur'an letter of Jonah verse 5, (3) the movement of the earth around the sun, the movement of layers coming from the bowels of the earth and the movement of clouds described in the Qur'an An Naml verse 88, (4) photosynthesis and chlorophyll are described in the Qur'an of Yasin verse 80, and (5) the process of creation man is described in the Qur'an Al Alaq verse 2. Rohana explains that the above things actually add faith to the Qur'an and make human spirit in digging the Qur'an. He also hopes that at present the development of social culture and the development of science can be a reference in understanding the Qur'an, Hadith, and science.

The interesting thing is also delivered by Abdurrohman Azzuhdi who is alumni of Tafsir Hadis Ushuluddin faculty, he explained that the concept of attachment of science to the science of religion he calls a hudan li al-muttaqin. He explains that the Qur'anic verses are interpreted using the style of exegesis of ilmi (exegetical interpretation of the conception of science and the Qur'an). Azzuhdi argues that the Qur'an reveals human experiments related to science, as in Al A'raf verse 179.

Meanwhile, according to Saifullah, teachers at Al Imdad revealed that the concept of integration of science and religion work with each other and produce new knowledge. For example about energy, according to him energy actually includes also internal energy and external energy needed by human. Internal energy is the energy needed by the human body in order that it can move or work, think, speak, and all sorts of sudden human activities that human beings are alive. This internal energy is required by every cell or tissue present in the human body. The heart can beat because of the energy available in the human body, as well as the lungs can

develop deflated because the body still has energy. Internal energy comes from foods and beverages that enter the human body and then through the process of biochemistry in the body converted into energy. When the human body has no energy, meaning the organ will stop performing its function. This is called death because there is no energy in the body. From a religious point of view, death can occur because the human life has been taken by the Almighty. Therefore it can happen that a person who is in good health (meaning in his body enough available energy), suddenly died (because his life has been taken by God). The problem of death cannot be avoided by all living things, it's just that humans do not know when the arrival of death. Regarding death there is a reminder of Allah's word in the letter of Ali Imran verse: 185.

External energy is energy derived outside the human body that is needed by humans to warm the body in winter (fire) or energy needed to move the equipment (aids) in order to support human activities. This external energy can be fossil fuels (oil and coal) needed to drive a car engine, a railroad engine, a plane, and so on. External energy can also be animal energy that includes energy that humans have long used, long before humans recognize the external energy derived from fossil fuels and other energy sources. Veterinary power as an external energy has been provided by God as in His word Al Mu'min verse 79.

Based on the letter of Al Mu'min verse 79, it can be understood that the source of all forms of energy needed by humans (internal or external) comes from God. So that if any man declares himself to create energy, it means he is aware of the fact that what is in this universe is God's creation as described in the word of Az Zumar verse 62.

5. Conclusion

In the case of *Madrasah Aliyah* Al-Imdad Yogyakarta, the Qur'an and Hadith teaching has been integrated with natural sciences. The teaching is conducted through relating one particular Qur'anic verse pertaining to the creation of universe to the theory of creation of universe in natural science. Accordingly, it is important to integrate between the two to fill the gap between religious science and secular science. The teaching is aimed to make the student to be open-minded and to encourage them to think about science from Qur'anic perspective.

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