

Earthquake (Zelzeleh) in the written heritage of Persian language and literature

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In this study, using the resources that have been made available with the expansion of computers and the Internet, the use of the word “Zelzeleh” (earthquake) in the written works of Persian language and literature has been studied. In this research, this word was investigated in Persian-speaking poets and writers from the fourth century to the present. The use of “Zelzeleh” in Persian literature was divided into three parts, including literary uses in expressing the grandeur and horror of something or an event, in the form of descriptions, similes, allegories, metaphors, exaggerations and other verbal and spiritual Literary devices, poetry and prose, the expression of the causes of earthquakes and also the presentation of information about the time and place of earthquakes. Using the resources available in the third category, a number of historical earthquakes that can be extracted from the mentioned texts were identified and introduced. These earthquakes occurred in the period from 654 to 1287 AH.

Keywords: historical Earthquake. History of science, literature, Persian language, Written heritage.

1- Introduction

Literature is a mirror that reflects the news and circumstances of each ethnicity and culture during its historical period. One of the most important natural events that can be traced and observed in the literature is an earthquake's occurrence. Earthquake, which is also the name of one of the chapters of the Qur'an (Zelzelah), plays an important role in everyday life and also the culture and customs of the people. It is employed in describing every horrific phenomenon in literature, which will be mentioned later. Thus it has a noticeable frequency in written works of Persian language and literature, especially poetry. Indeed, the particular importance of the earthquake in Persian literature is related to the Iranian plateau's seismicity, which has been the cradle of Persian culture and literature.

Due to the historical importance of Iranian culture and civilization on the one hand, and the special place of Iran, which is located in one of the most seismic regions of the world, on the other hand, some research in this field has already been done by domestic and foreign researchers. The point is that for statistical studies required to analyze the risk of earthquakes in each region in order to determine the appropriate conditions for construction purposes, there is a need to review the catalog or list of earthquakes that occurred in that region. However, the catalog of instrumental earthquakes recorded by seismographs is limited to a maximum of 100 years, while the return period of earthquakes on the causative faults maybe a thousand years or more. Under these circumstances, seismologists are forced to use sources other than instrumental seismic catalogs. These sources include historical and paleoseismic data from trenches excavated by archaeologists, which can be analyzed from a seismological point of view by determining age or dating in various ways. But the dating tests are expensive and that makes these studies difficult. Other auxiliary data for seismologists can be obtained by searching the history and written literary and historical works, which is very cost-effective and superior to other methods in this regard.

2- Research background

The Books "History of Earthquakes in Iran" (Ambraseys and Melville, 1982), "Earthquakes in the Mediterranean and the Middle East" (Ambraseys, 2009) and "Earthquakes and Coseismic Surface Faulting on the Iranian Plateau" (Barbarian, 2014) are among the best examples in this field. Efforts have also been made in the country to study the texts of the Persian language and literature related to earthquakes, the results of which are available in the form of scientific research articles (Blouri and Mokhtari, 1397) or online content (Tebyan website). In (Blouri and Mokhtari, 1397), seven earthquakes have been mentioned: the Sistan earthquake, early 2nd-century AH., Nessa Earthquake, mid-4th century AH. AH, Tabriz earthquake, mid-5th century AH., Hamedan earthquake, late 6th century AH. Q., Neishabour earthquake, early 7th century AH. Q., Neishabour earthquake, mid-7th century AH, and Tabriz earthquake, mid-7th century AH. These earthquakes are also mentioned in Tebyan website: 434 Tabriz earthquake, 1060 Tabriz earthquake, 1239 Shiraz earthquake, 1264 Shiraz earthquake, 1269 Shiraz earthquake. For the sake of brevity and avoidance of repetition, the report of these cases is omitted.

Today, due to the emergence of new computer facilities and more access to literary resources, the research in the field of earthquakes with a view to historical seismicity has been progressed more than ever. Given the

importance of historical earthquakes in seismological studies, even if only one historical earthquake is extracted from the reviews on written works of the Persian language and literature, then the great value is associated with this kind of research. The results can be helpful in seismic hazard analysis in particular regions.

3- The meaning of Zelzeleh /zelzele/

In the Dehkhoda dictionary, the following definition is mentioned in Persian:

Earthquake. Tremor. Hard movement and intense movement. (Notes on the handwriting of the late Dehkhoda). Earth movement and earthquakes, which are also called بومهن /bumehen/ and بومهین /bumehin/ landslides, vibrations, movements, and sudden movements of the earth's solid crust that, if severe, destroy buildings and cities, destroying a large number of people.

The following is a description of the causes and effects of an earthquake:

It should be known that our country Iran is located in the earthquake zone (Mediterranean belt) and as a result of the earthquake, many damages have occurred in this country since ancient times. Quotations from the Bible: 1:1 Kings and the book of Zechariah 19:11 say that Qorah and his companions were struck by a great earthquake, and the earthquake in Book 1: 1 and Zechariah 14: 5 also affected the historian Josephus. The quake was so severe that it split a mountain near Jerusalem, and one of the most ominous signs of the crucifixion of Christ is the earthquake, as recorded in Matthew 27:51 and 45. Also the earthquakes that have been recorded in the prophecy indicate the multiplicity of sedition and corruption in the provinces and countries.

The word Zelzelah /zelzelah/ is Arabic and it turns to Zelzeleh /zelzele/ in Persian like many other words imported to this language after Islam. This Arabic loan-word has been used in most sources and therefore, this keyword should be searched in order to study earthquakes in these works.

In the Dehkhoda dictionary, then, in the usual way in Persian lexicography, the poems that contain the word earthquake are given. The first example comes from Shahnameh (Fig. 1), which is the well-known epic work of Persian literature on the global scale and contains the very first uses of the term Zelzeleh in Persian Literature (Fig. 2).



Figure 1. A leaf from the Shahnameh of Ferdowsi in the fifth century AH

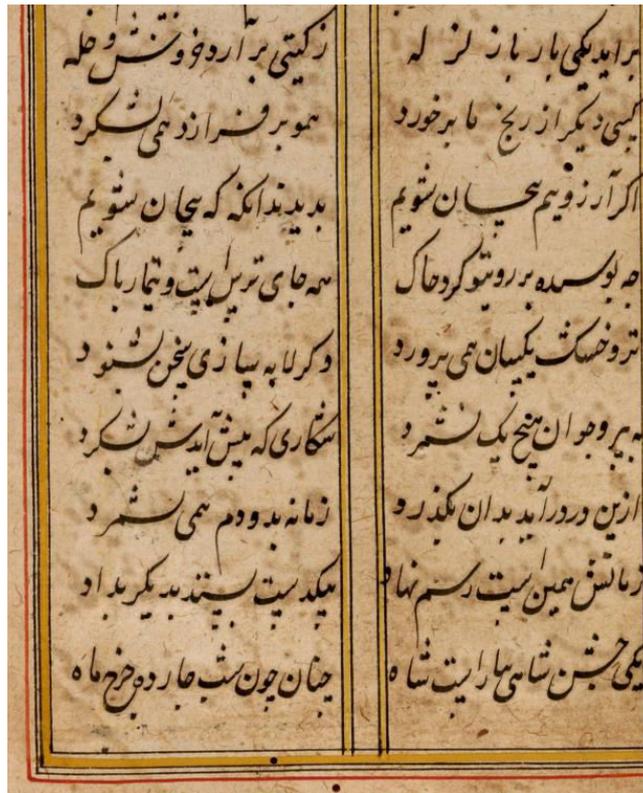


Figure 2. The term Zelzeleh used in the top line of the part included in the leaf presented in Fig. 1. Ferdowsi, Shahnameh, Manouchehr, Section 21: One wind blows with an earthquake_

4- Data and research methods: Earthquake “Zelzeleh” in the written works of Persian speakers

One of the important sources used in this study is the database of "Ganjour" website, which we mostly use to search for the word “Zelzeleh” in Persian literature. On this website, written works of the Persian language and literature, mainly including poems, have been collected. These poets and writers are from the fourth century to the present. Bringing the word earthquake in written works of Persian language and literature can be classified under three different headings:

4-1- Literary application

The first category, which includes most of the use of this word in literature, is the use of this word and concept in expressing the greatness and horror of something or event in the form of descriptions, similes, allegories, metaphors, exaggerations, or other literary Verbal and spiritual devices in poetry and prose. Countless examples of different speakers fall into this category, and due to their multiplicity, only a few of them will be mentioned briefly (Figs. 3 to 5):

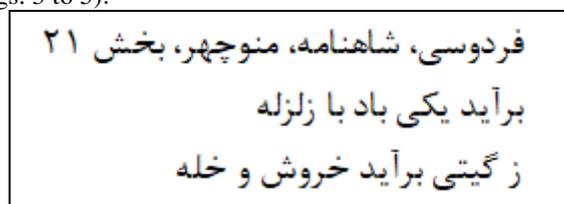


Figure 3. Ferdowsi, Shahnameh, Manouchehr, Section 2

Translation:

One wind blows with an earthquake

The roar and shouting rises from the universe

مولوی، دیوان شمس، غزلیات، غزل شماره ۶۴۲
 ای در رخ تو زلزله روز قیامت
 در جنت حسن تو غم نار که دارد

Figure 4. Rumi, Divan Shams, Ghazals, Ghazal No. 642

Translation:

*O in your face the earthquake on the Day of Judgment (as much tremendous beauty)
 In the paradise of your beauty, who is worried about the fire [of the hell]?*

نظامی، خمسه، مخزن الاسرار، بخش ۳۸ - مقالات دهم در نمودار آخر الزمان
 در طبقات زمی افکنده بیم
 زلزله الساعه شئی عظیم

Figure 5. Nezami, Khamseh, Reservoir of Secrets, Section 38 - Tenth Articles in the Apocalypse

Translation:

*Fear on the ground floors
 "Earthquake is a huge object."*

The later hemistich of this verse has been taken or borrowed by the poet directly from the holy Quran (Verse 1 of Surah Hajj).

4-2- Explain the cause of earthquakes in the ancient science

Another use of the term refers to times when the intention was to express a scientific fact or a common belief about this phenomenon. In this way, one can understand the thoughts of the past about this natural phenomenon, which can now be classified into two parts: science and quasi-science (Figs 6 to 15):

مولوی، دیوان شمس، غزلیات، غزل شماره ۲
 آغاز عالم غلغله پایان عالم زلزله
 عشقی و شگری با گله آرام با زلزالها

Figure 6. Rumi, Divan Shams, Ghazals, Ghazal No. 2

Translation:

*The beginning of the world was turmoil. The end of the world will be an earthquakes
 Love and gratitude with a herd; calm with earthquakes
 (opposing objects showing the paradox of the life)*

As another example, we can refer to this verse by Rumi, which shows that the speaker was familiar with the scientific concept of the tsunami, which is called the boiling and roaring of the sea due to an earthquake:

مولوی، دیوان شمس، غزلیات، غزل شماره ۸۷
 رهبر کن جانها را پرزر کن کانها را
 در جوش و خروش آور از زلزله دریا را

Figure 7. Rumi, Divan Shams, Ghazals, Ghazal No. 87

Translation:

Lead the souls, fill the mines

Roar the sea from the earthquake

From this verse of Rumi, it is clear that the ancient Iranians believed that many parts of the earth were crushed and turned into sand by earthquakes:

مولوی، مثنوی معنوی، دفتر اول، بخش ۷۰ - پا واپس کشیدن خرگوش از شیر چون نزدیک چاه رسید
این زمین با سکون با ادب
اندر آرد زلزلهش در لرز تب

Figure 8. Rumi, The spiritual Masnavi, The first book, Section 70 - Retracting the rabbit from the lion because it reached near the well

Translation:

This land is quiet with politeness

In the earthquake, shiver from the fever

Because of this damned catastrophe

He has been crushed and turned into sands

In a part of Masnavi, while telling an allegorical story about Zolkarnain going to Qaf Mountain, Rumi explains the reason for the earthquake and at the endpoints out that for someone who is not aware of this issue (the real reason for the earthquake as he thought) the reason for the occurrence of this phenomenon is mistaken for earth vapors:

بخش ۱۳۷ - رفتن ذوالقرنین به کوه قاف
مولوی، مثنوی معنوی، دفتر چهارم
رفت ذوالقرنین سوی کوه قاف
دید او را کز زمرد بود صاف
گفت تو کوهی دگرها چیستند
که به پیش عظم تو باز بستند
گفت رگهای من اند آن کوهها
مثل من نبوند در حسن و بها
من به هر شهری رگی دارم نهان
بر عروقم بسته اطراف جهان
حق چو خواهد زلزله شهری مرا
گوید او من بر جهانم عرق را
پس بجنبانم من آن رگ را بقهر
که بدان رگ متصل گشتست شهر
نزد آنکس که نداند عقلش این
زلزله هست از بخارات زمین

Figure 9. Section 137 - Zolkarnain going to Qaf Mountain, Rumi, Masnavi Manavi, Fourth book

Translation:

Dhu al-Qarnayn went to Mount Qaf (the highest mountain in Persian mythology)

He saw the mountain covered by the emerald

He said, "What are the other mountains in front of you"?

How they can stand against your greatness

He said, "My veins are those mountains".

They were not like me in goodness and value

I have a secret vein in every city

The world is dependent on my arteries.

When God wants an earthquake to happen in a city

He says I move my vein

So I shake that vein with anger

Which is connected to the city

who does not know his intellect

[He thinks] the earthquake is from the vapors of the earth

Attributing the cause of earthquakes to the vapors of the earth has a long root in the history of science and is still used today in books and treatises that are the reference for teaching ancient sciences:

زلزله زمین غالباً به خاطر حبس بخارها - اعم از اینکه بخار آب یا دخان و یا از هر دو مختلط باشد - واقع می شود. اگر بخارها غلیظ بوده به نحوی که نتوانند از منافذ و مجاری زمین خارج شوند و یا زمین صاف و محکم بوده و مسامات و منافذ نداشته باشد و بخارها برای خروج از زمین جمع شوند زلزله به وقوع می پیوندد.

به ندرت نیز ممکن است علت وقوع زلزله سقوط سنگ بزرگی یا ریزش قسمتی از خاک کوه از بالای دره های عمیقی که در باطن و زیر کوههاست باشد که به دنبال آن هوایی که از راه منافذ به داخل زمین نفوذ پیدا کرده است موج برداشته و زلزله محقق می شود.

چشمه از تکثیف بخارهای لطیف حاصل می شود، بخارها در گوشه ای از زمین اجتماع نموده و اجزاء آن به یکدیگر متصل می شوند و در صورتی که سردی به آنها برسد به قطرات تبدیل شده و قطرات به یکدیگر متصل گشته و با پیدا شدن منافذ، چشمه جاری می گردد و اگر مقدار آنها زیاد باشد به گونه ای که زمین گنجایش آنها را نداشته باشد باعث انشقاق ارض و انفجار عیون می شود. اصل بئر و قنات نیز بخارهای بروودت پیدا کرده می باشد و چون قدرت شکافتن زمین را ندارند در صورتی که زمین را بشکافیم به آنها دست پیدا خواهیم کرد. اگر بخارهای محتبس در زمین زیاد باشند زلزله و چشمه ها و چاهها و قناتها متکون می گردند و اگر زیاد نباشند معادن حاصل می شوند.

Figure 10. Imam Khomeini's Philosophy Lectures, vol. 2

Translation:

Earthquakes are often caused by the trapping of vapors, whether they are water vapor or smoke or a mixture of both. If the vapors are so concentrated that they cannot pass through the pores and ducts of the earth, an earthquake occurs, or the ground is flat and firm and has no gaps and pores and vapors collect to get out of the ground.

Rarely, an earthquake may be caused by a large rock falling or falling part of the mountain soil from the top of a deep valley in the interior and under the mountains, followed by air that penetrates the ground through pores is amplified and the earthquake happens.

The spring is obtained from the amplification of subtle vapors, the vapors gather in the corner of the earth and its components are connected to each other. If cold reaches them, it turns into droplets and the droplets are connected to each other. When a hole is found, a spring flows and if their amount is large so that the earth does not have the capacity, it will cause the earth to split and the spring to explode. The wells and aqueducts are also originated from cold vapors, and because they do not have the power to split the earth, we will get them if we split the ground, if there are many vapors trapped in the ground, earthquakes and springs, wells and aqueducts are settled, and if they are not many, mines are obtained. "(Imam Khomeini's Philosophy Lectures, vol. 2)

This meaning has also appeared in Qaani poems:

قآانی، قصاید، قصیده شماره ۱۶۲ -
حکم ترا در شکوه نسبت ندهم به کوه
زانکه فتد زلزله زبخره برکوهسار

Figure 11. Qaani, Odes, Ode No. 162

Translation:

I do not resemble you to the mountain

Because the earthquake happens in the mountain as the result of vapors

(You are more significant than the mountain and nothing like an earthquake can shake and worry you)

In another poem, the intensified damage caused by two successive earthquakes is used for poetic expression:

نظامی، خمسه، لیلی و مجنون، بخش ۴۳ - وفات یافتن ابن سلام شوهر لیلی
یک زلزله از نخست برخاست
دیوار دریده شد چپ و راست
چون زلزله دگر برآمد
دیوار شکسته بر سر آمد

Figure 12. Nezami, Khamseh, Lily and Majnoon, Section 43 - The death of Ibn Salam Lily's husband

Translation:

An earthquake struck from the beginning

The wall was torn left and right

When another earthquake struck

The broken wall came to an end

In Tazkerat al-Awliya, Attar repeats the old common belief that the earth is behind a fish and whenever the fish stops moving, people think there is an earthquake:

عطار، تذکره الأولیاء، ذکر شیخ ابوالحسن خرقانی
وگفت: همچنین خدای تعالی را بندگانش بر پشت زمین که خدای را یاد کنند ماهی در دریا از رفتن باز ایستد زمین در
جنبیدن آید خلق پندارند که زلزله است ...

Figure 13. Attar, Tazkerat al-Awliya, Zikr Sheikh Abul Hassan Kharghani

Translation:

He said: They also worship the Almighty God on the back of the earth to remember God. The fish in the sea stops moving. The earth is moving, and people think it is an earthquake...

In this poem, Biddle apparently speaks of the belief that the mountain, despite its large mass, is more affected by earthquakes:

بیدل دهلوی، غزلیات، غزل شماره ۱۵۸
ز انقلاب حوادث بزرگی ایمن نیست
به طبع کوه اثر افزونتر است زلزله را

Figure 14. Bidel Dehlavi, Ghazals, Ghazal No. 158

Translation:

*Greatness is not safe from the revolution of events
The mountain suffers much more from an earthquake*

Saeb Tabrizi states in a poem that earthquakes are not something that happens every day:

صائب تبریزی، دیوان اشعار، غزلیات، غزل شماره ۲۱۹۰
موقوف به وقت است سماع دل عارف
هر روز در اجزای زمین زلزله ای نیست

Figure 15. Saeb Tabrizi, Poetry Divan, Ghazals, Ghazal No. 2190

Translation:

*There should be a special moment for dancing (Sama') of a holy person (Aref)
Earthquakes do not happen every day on the earth.*

4-3- refers to a specific earthquake

The other category is where information is given directly about this phenomenon and its occurrence at a specific time and place. This latter group is critical from the seismology point of view. The information obtained through these cases, although it seems small in number, is precious, especially in areas where no information is available from other sources. It is also beneficial since there is almost no cost for this extraction, For example, in the following sonnet of Rumi, it is observed that an earthquake occurred in the city of Medina on the fifth of Dhi Al-Qaeda in the year 654 AH (Fig. 16).

مولوی « دیوان شمس » غزلیات « غزل شماره ۱۸۳۹
در شب شنبه ای که شد پنجم ماه قعدة را
ششصد و پنجهست و هم هست چهار از سنین
هست به شهر ولوله این که شدهست زلزله
شهر مدینه را کنون نقل کژ است یا یقین

Figure 16. Rumi, Divan Shams, Ghazals, Ghazal No. 1839

Translation:

*On Saturday night, this was the fifth month of Al-Qaeda
It is six hundred and fifty and there are four years
There are rumors that an earthquake happened
Now, the quotation about the Madinah city is right or wrong?*

Hatef Esfahani in the following poem refers to the Kashan earthquake and in another poem to the reconstruction of that city by Abdul Razzaq Khan. This earthquake occurred in 1192 AH (Fig. 17 and 18).

هاتف اصفهانی، دیوان اشعار، قصاید، قصیده شماره ۵
نیمه شبی ناگهان آه از آن شب فغان
ساخت به یک لحظه اش زلزله زیر و زبر

Figure 17. Hatef Esfahani, Poetry Divan, Poems, Ode No. 5

Translation:

*In the midnight Suddenly Oh from That Night, Shout...
In an instant, an earthquake destroyed that city (Kashan)*

هاتف اصفهانی، دیوان اشعار، ماده تاریخها، شماره ۳۸
 خان جم کوکبه عبدالرزاق
 که کند دیدن او جان تازه
 آن که با جود کفش هر روزه
 عهد نو سازد و پیمان تازه
 شهر کاشان را از همت او
 شد پس از زلزله بنیان تازه ...

Figure 18. Hatef Esfahani, Poetry Divan, Article History, No. 38

Translation:

*Khan Abdul Razzaq, whos wealth is like stars (prominent and high)
 Who seeing him makes the soil fresh
 The one with his generous hand every day
 Makes a new commitment and makes a new donation
 The city of Kashan from his efforts
 Has a new foundation after the earthquake ...*

In the short story after praising Mamdouh Izz al-Din Massoud bin Arsalan of Seljuk, Nezami describes a terrible earthquake and Mamdouh's actions in reconstruction after it occurred between 429 and 550 AH according to the years of Seljuk rule (Fig. 19):

نظامی، خمسه، خردنامه، بخش ۶ - در ستایش ممدوح
 ازان زلزله کاسمان را درید
 شد آن شهرها در زمین ناپدید
 چنان لرزه افتاد بر کوه و دشت
 که گرد از گریبان گردون گذشت

Figure 19. Nezami, Khamsheh, Kheradnameh, Section 6 - In praise of Mamdouh

Translation:

*The earthquake which ruptured the sky
 Those cities disappeared on earth*

In one of his poems, Khaghani refers to the earthquake that destroyed Khorasan. He lived between 520 and 595 lunar years. Therefore, a deadly earthquake must have occurred in Khorasan during this period (Fig. 20):

خاقانی، دیوان اشعار، قصاید
 دردا که تا سواد خراسان خراب گشت
 دلها خراب زلزله درد کرده‌اند

Figure 20. Khaghani, Poetry Divan, Poems

Translation:

*Oh, since Khorasan was ruined [by an earthquake]
 Hearts are broken by the earthquake of pain*

Nasser Khosrow Ghobadiani has also dealt with the earthquake and its effects in some of his books and has reflected the relevant news in prose (Fig. 21 and 22):

ناصر خسرو، سفرنامه، بخش ۱۱ - از شمیران تا تبریز
 "مرا حکایت کردند که بدین شهر [آذربایجان] زلزله افتاد شب پنجشنبه هفدهم ربیع الاول سنه اربع و ثلثین و اربعمائه و در
 ایام مستترقه بود پس از نماز خفتن بعضی از شهر خراب شده بود و بعضی دیگر را آسیبی نرسیده بود و گفتند چهل هزار آدمی
 هلاک شده بودند."

Figure 21. Naser Khosrow, Travelogue, Section 11 - From Shemiran to Tabriz

Translation:

I was told that there was an earthquake in this city [Azerbaijan] on the night of Thursday, the 17th of Rabi al-Awal, in the year forty-three and forty-four, and it was in the days of Mastaraqa. Were destroyed
 And they said forty thousand people had perished

Thus, the earthquake occurred in Azerbaijan on the 17th of Rabi al-Awal, 434 AH. This date corresponds to the years of birth and death of this speaker, i.e., 394 to 481

ناصر خسرو، سفرنامه، بخش ۳۱ - رمله (فلسطین)
 "روز یکشنبه غره رمضان به رمله رسیدیم و از قیساریه تا رمله هشت فرسنگ بود و آن شهرستانی بزرگ است ... و بر پیش صفه
 نوشته بودند که پانزدهم محرم سنه خمس و عشرين و اربع مائه اینجا زلزله ای بود قوی و بسیار عمارات خراب کرد اما کس را
 از مردم خللی نرسید."

Figure 22. Naser Khosrow, Travelogue, Section 31 - Ramla (Palestine)

Translation:

On Sunday, we reached Ramla during the month of Ramadan, and it was eight miles from Caesarea to Ramla, and it is a big city ... "No one was harmed".

So the earthquake occurred on the 15th of Muharram 415 AH in Ramla, Palestine.

Samet Boroujerdi also refers to the Silakhor earthquake. This earthquake occurred in 1287 in Silakhor, Boroujerd. This date corresponds to the years of the poet's life, 1363-1263 AH (Fig. 23):

صامت بروجردی، کتاب المواد و التاريخ
 شماره ۵ - تاريخ زلزله عجيبه سيلاکور
 رقم نمود به تاريخ اين بلا (صامت)
 بود ز زلزله ويرانه کل سيلاکور

Figure 23. Samat Boroujerdi, Book of Materials and History, No. 5 - History of the strange earthquake of Silakhor

Translation:

Figured to the date of this disaster (Samet)
 All Silakhor is devastated by the earthquake

It should be noted that each letter has a numerical value (In the Abjad writing system) in the second part, which sums to 1287, the year of the earthquake.

5- Discussion and conclusion

In this study, it was shown that despite the research, Persian written works can still have an important application in identifying historical earthquake records in different regions of the country due to the expansion of computer and Internet resources. A large part of the use of the word Zelzeleh in written sources of Persian language and literature is its use in the form of literary devices. There are also manifestations of the ancients' beliefs about the

nature and causes of earthquakes in the works of the ancients, which deserve further research to understand the history of seismology in the past scientific-cultural territory of the Persian language. These applications of Zelzeleh are concerned with the scientific or quasi-scientific causes of the earthquakes. Some earthquakes can be traced in written Persian works. Some examples of the latter cases include The fifth earthquake of Dhi Al-Qaeda in the year 654 AH in Medina, the earthquake between the years 429 to 550 AH in the Seljuk realm, the earthquake between the years 520 to 595 AH in Khorasan, the seventeenth earthquake in the first quarter of 434 AH in Azerbaijan, the fourth earthquake in the fifteenth century AH Lunar Kashan, earthquake 1287 Silakhor Boroujerd.

References

- Ambraseys, N. N. and Melville, 1982, C. P., A History of Persian Earthquakes, Cambridge University Press.
- Ambraseys, N. N., 2009, Earthquakes in the Mediterranean and the Middle East: A Multidisciplinary Study of Seismicity up to 1900, Cambridge University Press/
- Berberian, M., 2014, Earthquakes and Coseismic Surface Faulting on the Iranian Plateau, Elsevier.
- Blouri, m. And Mokhtari, N., 1397, Psychological Reflection of Natural Disasters in Literary Texts of the 4th to 8th Centuries AH, Scientific-Specialized Quarterly of Studies in Linguistic Language and Literature, 8th Year, No. 26, pp. 17-34.
- Dekhoda, AA, 1998, 16, 1, Dictionary, Tehran, Tehran University Press.
- Ganjoor website retrieved from: <https://ganjoor.net/>
- Imam Khomeini Portal retrieved from: <http://www.imam-khomeini.ir/>
- Parsi wiki website retrieved from: <https://www.parsi.wiki/>
- Tebyan website retrieved from: <https://article.tebyan.net/219153>