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Museum of the Geological Survey of Iran, a Geotourism attraction

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Abstract

In addition to the geological heritage and Scientific heritage the specialized geological museum of the Geological Survey of Iran (*GSI*), like all the specialized geological museums and multidisciplinary museums of natural sciences, is an essential factor in designing and compiling study and executive programs to protect the geological heritage of Iran. Although there is a long way to reach this goal, short-term and long-term planning as well as maintaining a closer relationship of geologists with this place can be introduced as effective measures to create a superior position, start targeted activities, and develop the concept of the museum of the Geological Survey of Iran. Considering the richness of this collection of all kinds of stones, minerals, and fossils collected from all over Iran, this geological collection and site museum is introduced as a valuable geological site with the attraction of geotourism and dinosaur geotourism. Which should be maintained and improved for scientific, educational, and tourism activities.

Keywords: Geological Museum; Geological Heritage; Geotourism; Geological Survey of Iran.

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1. Introduction

Museums are the primary means of protecting tangible and intangible heritage, essential factors of world heritage tourism and sustainable development. They connect the past, present, and future like a bridge (Sharif-Askari, 2018) It is also an essential factor in strengthening the creative economy at the local and regional level, creating a platform for dialogue, addressing complex social issues, encouraging public participation, strengthening social cohesion, building capacity for museum professional's scientific research and are known as spaces for observation and informal education. The five main types of museums, natural history and natural sciences, science and technology, history, art, and virtual museum (Kamaraldin, 2019) are spaces for introduction, dissemination, and scientific heritage and are like schools that provide creative thinking, cultural intellectual awareness and identity for today's and future generations (Afkhami, 2019). According to the definition International Council of Museums at the 26th ICOM General Conference in Prague, "A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. (ICOM, 2023). Terms like Outdoor museum, indoor museum, historic houses, living history museum, open-air museum, site museum, house museum, open site museum, folk museum, historic parks, and heritage parks are used in topics related to museums (Moolman, 1996). However, the geological collections that reflect numerous scientific issues in the earth sciences have taken a special place in the subject of the museum. In most geological exhibitions, the presentation of collections is based on introducing "knowledge museology" as defined by Davalon (1999), and the presentation of geology to the public is through on-site interpretation and off-site display of collections in museums. (Van Geert, 2019). There are various reasons for users to refer to earth science samples, such as: (1) as sample material for comparative studies (2) as Education and training (3) as educational outreach to provide a new and deeper understanding of the Earth sciences (4) Trying to link earth sciences with other sciences (5) Connecting and accompanying exhibitions that preferably deal with aesthetics and culture (6) Research and survey and Economic relevance (De Wever, 2018) (7) As valid political institutions, they help in the formation of identity and Effective in social balance (Thiemeyer, 2020).

2. Literature review

In Iran, the collection of geological items can be seen in natural history museums, geological museums of earth sciences departments at universities, geological survey, and their centers in the country and schools according to

research and educational activities. Some of the most important of them are the natural history museums of Isfahan, Tabriz, Ardabil, Hamedan, Urmia, and Shiraz; the Department of Geology and Iran Wildlife and Nature Museum, Dar Abad – Tehran, Geology Museum Park, in Geological Survey of Iran North East Territory, Maragheh Paleontology Museum in Paleontology and Paleo biodiversity Research Center of Iran, Museum of Earth Sciences of the Geological Survey and Mineral Exploration of Iran (*GSI*), and the Geological Museum of the University of Tehran, are of the most important geological collections in Iran. In this discussion, before introducing the Museum of the Geological Survey of Iran, it is better to introduce the Geological Organization, which is the foundation of its establishment. In Iran, Geological studies and investigations were carried out by the National Iranian Oil Company and other Oil Companies, before the establishment of the Geological Organization in 1962. Given the professional activities of oil companies, the idea of establishing the organization of geology and mineral explorations of Iran was performed. With the continuous efforts of Safi Asefia (Engineering Mining) and the Ministry of Industries and Mines, in 1338, the law establishing the Geological Organization of the country was approved by the National Assembly and the Senate of Iran. (Berberian, 1997). In the second article of this law, the formation of a council called the Supreme Geological Council composed of representatives of the University of Tehran, the National Iranian Oil Company, the Program Organization, and the Ministry of Industries and Mines was considered (majlis. 2023). In 1961, Nasrullah Khadim was appointed as the head of the plan to establish the Geological Organization of the country, subject to the law approved in 1338, at the suggestion of Esfia, the advisor to the minister and the head of the program (Banki, 2013). In recognition of his valuable services to the Geological Organization, the Nasrullah Khadim National Geological Award was proposed by the author to the Geological Survey of Iran in 2021, and finally, the first award ceremony was held at the 25th Conference of the Geological Society of Iran in 2022 but Geological Survey museum was established in 1966 and started working as a part of the heavy mineral laboratory of the Geological Survey headed by Taghi Parsa (Geologist) and with the cooperation of Jafar Lankarani (Geologist). During Ali Almasi's presidency of the Geological Survey (1982), its management was entrusted to engineer Mustafa Shahrabi (Geologist). In 1991, the museum was under the supervision of the Library of the Geological Survey, and this collection was named after the library and museum department headed by Dr. Mohammad Lotfi (Geologist) However, in 2011-2012, the museum was separated from the Library and was given to the public relations department. The prototypes of the museum were prepared in three ways: donated, purchased, and

collected in field operations, by Iranian and International Geologists who collaborated with the Geological Survey. Pierre Barian, a French geologist, pioneered collecting some museum samples Vigen Isakhanian (mining engineer) and Manouchehr Sadrzadeh (geologist) played the leading role in organizing them. Objects such as old mine tools, oil point, Mine Lamp, Mine shoe, Mine pick, Types of silicate and non-silicate minerals, Gemstone, Various types of igneous, metamorphic, and sedimentary rocks, Many types of animal and plant fossils, a number of Recent Bivalvia and Gastropods shells, Meteorites, A Dinosaur egg and Dinosaur Footprints which is the most exciting part of the museum.

2.1. Jurassic dinosaur footprints of the Kerman area, Central Iran

The number of 23 dinosaur footprints found in continental Liassic formations in the north of Kerman (Central Iran) has been reported, which is the first evidence of reptiles in Mesozoic time in Iran. Four of these footprints have been attributed to Ornithopod dinosaurs and one to *Grallator*, a *coelurosaurian* theropod.in 1969 Geological Survey formed a search team to find suitable sedimentary environments for dinosaurs. Their organized studies began in the north of Kerman, which was the most promising area. In July 1969, two geologists of the National Iranian Iron and Steel Corporation (Y.Rezai and M. Shahrabi), in the Neyzar Valley, discovered a ripple-marked sandstone slab bearing a large footprint with three digits which they correctly interpreted as that of a dinosaur. When the second footprint was found (Specimen kept in the Museum of the Geological Survey of Iran, Tehran), on the recommendation of Dr. Seyed Emami and the efforts of Engineer Nasrullah Khadim, Lapparent was invited for detailed studies and The Geological Survey of Iran decided to organize a paleontology working group to resume finding dinosaur footprints in the Mesozoic formations of Kerman region. M. Davoudzadeh and M. Mehrnush of the Geological Survey of Iran and *A.F*. de Lapparent from PaM.Halaviati of the Geological Survey and from the Iron and Steel Corporation through Eng. Shakeri, Director of the Kerman branch, and *G.S.I*. geologists M.Shahrabi and B.Arjang, were geologists who were present in this mission in 1970. (Lapparent and Davoudzadeh, 1972).

2.2. Dinosaur footprint Geosite

The position of dinosaur sites has been a critical position in the defined topics of tourism, since the birth of dinosaur geotourism, in 1957, at the opening of the Carnegie Mine, Utah, (Cayla, 2018). Until now, geosites related to dinosaurs are among the most visited geotourism sites with great appeal to all people of all ages and any education. Dinosaurs in geological

museums increase their tourism value also Dinosaur outcrops are hot spots of paleontological discoveries with tourism purposes. Cayla (2021) Due to this importance Dinosaur tourism, in general, is based on three types of paleontological remains: bones, Eggs or hatcheries, and footprints or trackways, the importance of the Museum of the Geological Survey is determined as a dinosaur geotourism. This footprint in the Museum of the Geological Survey of Iran is a paleontological heritage in fact this Ichnofossil is an incentive to start new research in the field of life of these mysterious creatures.

Fig 1. Geoscience Museum entrance

Fig 2. Main space, East-west view

Fig 3. Corridor of minerals and Objects such as old mine tools

Fig 4. Fossil corridor, view from South to north

Fig 5. Corridor of minerals and Objects such as old mine tools

Fig 6. Invertebrate Fossils

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Fig 7. Dinosaur footprints (main slab)

Fig 8. Dinosaur footprint

Fig 9. Dinosaur egg

Fig 10. Lower jaw Giraffe (Miocene, Maragheh)

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Fig 11. Kerman meteorite

3. Research methods

In this research, descriptive-analytical methods, searching for critical sources, selected related articles and the opinion of some veterans of the Geological Survey were used, which led to facts documented by the Museum of Geological Survey of Iran.

4. Result

The Museum of the Geological Survey of Iran is a site and geological and scientific heritage with age almost equal to the establishment of the Geological Survey, which is affected by the historical evolution and policies applied to that organization, which can be a center for theorizing and analyzing strategic policies. In order to preserve the geological heritage of Iran. The type of items kept in this museum has more the nature of a geological museum than a museum of geosciences, there are still many gaps to reach a comprehensive museum of geosciences with comprehensive goals. In order to achieve this aim new managerial and scientific-technological policies must be applied. The practical suggestions below can be helpful in this the practical suggestions below can be helpful in this field:

- Setting up series and non-series publications of the Geological Museum, for professional, non-professional readers and the public, Catalogue Records.
- Preservation and maintenance of Index fossils to the geological formations and periods of Iran and studied samples
- Given that all museums have an associated library of geological books and maps, (Rumsey, 2020), it is better to manage the museum and the library of the Geological Survey of Iran as before in an organizational unit called the Library and Museum Department.
- Publishing and making available photographic postcards prepared from museum samples and geological phenomena of Iran.
- Holding lectures and specialized seminars on geology and geotourism.
- Efforts to preserve the authenticity of the museum and education.
- Planning for the development of the museum and increasing the scientific, educational, and tourist attraction. Programs for museum development and increasing the attractiveness of science, education, and tourism.
- Efficient management of projects and research activities with the aim of promoting tourism and scientific development of the museum.
- Providing a practical and ideal definition of geological museums and geoscience museums and effort to complete it in the future. Separation of geoscience museums from geological museums and identifying similarities and differences between them.
- A comprehensive approach is suggested in the planning of creating the National Museum of Geology of Iran, centered on the Geological Survey and the Geological Society of Iran in an independent structure, in an independent center such as the National Museum of Iran.
- Creation of information spaces and scientific services by experienced geologists.
- Transforming the Museum of Geological Survey of Iran into an encyclopedic Museum according to encyclopedic paradigms.
- Trying to place the Geological Museum in the International Council of Museums Iran (ICOM IRAN).
- Creating a challenge with the aim of upgrading the Geological Museum of Iran to the International Museum of Earth Sciences
- Forming a committee to review geological museums and collections for standardization in the Geological Survey of Iran.

- Use of Geo-site, method of quantities evaluation of the CPRM to registration and quantification of Museum site (Lopes, 2019).
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5. Discussion and Conclusion

For all sites with geological potential, land conservation is defined by the need to protect the geographical heritage Herrera-Franco (2021) Although Policies, methods, and measures aimed at protecting the geographical heritage and conserving geoheritage, Both in situ (geosites, sites of geographic diversity) and ex situ (e.g. collections in museums) are highly temporally and spatially distinct (Reynard, 2018). According to the historical record of geological collections (Wyse Jackson, 1999) and the positive performance of museums in the memory of history, museums are the best places designed to make scientific heritage visible and preserve it. (Laurence and Wilson, 2013). From the 1820s onwards, the importance of geological museums as essential sources of knowledge for the history of the geological sciences began in the 'Heroic Age' of geology (Wyse Jackson, 1999). Multidisciplinary museums of natural sciences and specialized geology can play an influential role in planning, implementing, and promoting geological heritage protection policies on a wide scale (Jakubowski, 2004). Places and Positions like the position and effects of protected resources in place or "in situ collections" such as footprints, Global Boundary Stratotype Sections and Points (GSSPs), and important horizons, structures, minerals, or fossils remaining in place (Rumsey,2020) and geological collections collected in specialized museums of geology and natural history in the field of geotourism It is debatable. Museum Geological Heritage Collection" (*MGHC*) which is a concept based on Understanding the structure and concept of Immovable geological heritage (*IGH*) and Movable geological heritage (*MGH*) has a clear impact on our attitude towards geological museums, studying visiting both groups as Geological geosites is a researchable subject that can be the beginning of new policies in the field of geotourism and museums Science (Jakubowski,2004).Geosites, Geomorphosites, and Geoparks are strategies for conservation, education, and sustainable development (Palacio-Prieto, 2013). The scientific heritage, both outside the museum and inside the museum, due to the evolution, dynamics, and complexities of the endless scope of the world of science, in addition to the fact that it requires a deep definition and due to the inseparable connection with the scientific infrastructure, it has great value it needs protection (Lourenco and Wilson, 2013) Interest in geological history is closely related to the level of understanding of geological collections and it is effective in increasing geological thought (Wyse Jackson, 1999).

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