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Museum of the Geological Survey of Iran, a Dinosaur footprint Geosite

Roya Tashayoei
Department of Earth Science Encyclopedia
Geological Survey & Mineral Explorations of Iran (GSI)
Tehran , Iran
Tashayoei_Roya@yahoo.com

Parvaneh Rezaei-Rouzbahani
Department of Sustainable Tourism Development
Creative Economy Research Center, West Tehran Branch, Islamic Azad University
Tehran, Iran
Dr.roozbahani@gmail.com

Mostafa shahrabi
Geological Survey & Mineral Explorations of Iran (GSI)
Tehran , Iran

Abstract— **Specialized Geology Museum of Geology Survey of Iran with age almost equal to the establishment of the Geological Survey is a collection that can be considered as a Geosite, Dinosaur footprint Geosite, Geological heritage and scientific heritage. Although this collection has been affected by historical developments and policies applied in that organization but for promotion, it is necessary to formulate study and executive programs.**

Keywords- Geological Museum Geotourism; Geological Survey of Iran; Geological Heritage

1. Introduction

Geographical heritage complements the natural world heritage and helps us understand the earth and its history [11]. Geoheritage and geoconservation are concerned with the preservation of Earth Science features both are integral components of education [4],[9]. The focus of geographic heritage is on the diversity of minerals, rocks and fossils and petrogenetic features according to their origin [16]. And because of the focus on geology and geomorphology, it can be important for local cultural reasons, natural resource management, land management, research, education and tourism [5]. Geological materials can be in the collections and exhibitions rooms be presented in the as geoheritage, because illustrative of the history of the Earth. Geological museums are places that classically depict the history of the earth and can be defined either in Open-air (outdoor, ex situ) or in situ museums. 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 [18]. 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 [13]. also are spaces for introduction, dissemination, and scientific heritage and are like schools that provide creative thinking, cultural intellectual awareness and identity for todays and future generations [1.] the geological collections that reflect numerous scientific issues in the earth sciences have taken a special place in the subject of the museum [19]. There are various reasons for users to refer to earth science samples, such as: [8],[21].

(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
(7) As valid political institutions, they help in the formation of identity and Effective in social balance

2. Geological collections in Iran

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.

2.1. Museum of the Geological Survey of Iran

Geological Survey Museum was established in1966 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 Isa khanian (mining engineer) and Manouchehr Sadr Zadeh (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.

3. Dinosaur footprint Geosite in Museum of the Geological Survey of Iran

Since the introduction of dinosaur geotourism in 1957 at the Carnegie mine site, Utah, sediments with various dinosaur remains have become prominent and brilliant geotourism sites [6]. Dinosaur footprints are very useful in palaeoecological studies [10]. 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. [7] use 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.

3.2. 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 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 [14].

Figure 1. Pictures of dinosaur footprints

4. Discussion and Conclusion

According to the historical record of geological collections 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 [15]. 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 .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 Geosite is a researchable subject that can be the beginning of new policies in the field of geotourism and museums Science [12] . 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 [20]. also, the dinosaur footprint as one of the main elements of the Geosite Museum of the Geological Survey of Iran can be introduced as a paleontology site in illustrious Dinosaur Footprint Geosite and be considered in the field of earth protection of the paleontological heritage in Domain Jurassic geological heritage.

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