1 Introduction

Langshan orogenic belt, located in the western part of the northern margin of the North China Craton (Fig.1), is a well-known Cu-Pb-Zn polymetallic ore belt and hosts Dongshenmiao, Tanyaokou, Huogeqi and Jiashengpan large-super large Zn-Pb-Cu-Fe sulfide deposits. Studies from the regional geological and mineral resources characteristics, the geological features and genesis of ore deposits (Zhai et al., 2004; Peng et al., 2007), the ore-controlling synchronous faults (Peng et al., 2004), synsedimentary volcanic activities (Peng et al., 2007a), the regional geological tectonic evolution (Peng et al., 2007b), the diagenesis (Peng et al., 2010) and the mineralization and its genesis (Peng et al., 2007c; Zhong et al., 2012, 2013) have enhanced our present understanding of the geological tectonic evolution and mineralization of Langshan orogenic belt in recent years. But, the geological tectonic evolution and mineralization of Langshan orogenic belt is still an important problem which should be deeply studied.

2 Geological Tectonic Evolution and Mineralization

The geological tectonic evolution and development of Langshan orogenic belt has experienced a long and complicated process, includes several stages, such as the formation in Neoarohean and the deformation in Early Proterozoic of crystalline basement, the passive continental margin aulacogen was formed in Mesoproterozoic, the continental margin activities in late Neo-Proterozoic and the development of compression and orogeny from Hercynian to Mesozoic with considerable intrusion of acid-intermediate magma, and a great amount of Zn,Pb,Cu,Fe,Au mineral resources was formed. The types, scales and the regulations of temporal and spatial distribution of these ore deposits show a close coupling relationship with ore-forming geological setting and tectonic evolution, and the different deposits were formed in each stage of geological tectonic evolution process of Langshan orogenic belt.

In the Late Archean, the submarine volcanic eruption-ferrosilicon sedimentary formation of Archean She’er teng group was formed, subsequently subjected to metamorphism reformation, where the submarine volcanic-sedimentary-metamorphic type iron ore-deposits were formed.

In the Mesoproterozoic, the Langshan passive continental margin aulacogen furthermore to break-up, subsidenced, and formed several secondary fault basins in passive continental margin environment. Because of extension, the fault basin was rapidly subsided with the earth crust be thinned, intrusion of crustal-mantle magma, synchronous faults, synsedimentary volcanic activities and an abundance of ore-forming materials, and the submarine exhalative-sedimentary large-super large lead-zinc-copper-iron sulfide deposits, such as Dongshenmiao, Tanyaokou, Huo geqi and Jiashengpan, were formed.

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modification to the latters. But parts of the Dongshengmiao, Tanyaokou and Hougoqi copper deposits were formed by the magmatic-hydrothermal process in the later orogeny.

The Indo-China movement and Yanshan movement resulted in volcanic eruption events, emplacement of considerable magma and a series of intermontane basin with crustal thickening and stratum deformation in Langshan orogenic belt from Mesozoic to Cenozoic. But any important deposits which may be formed from Mesozoic to Cenozoic isn’t discovered in recent years.

References