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Giant Iron Ore Characteristics in the Region of Anshan-Benxi

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The region of ANSHAN-BENXI is an important iron ore of sedimentary-metamorphic distribution area, the district has proven iron ore resources accounted for about the same type of iron mine has proven reserves of 40% in China (Li Shijiang et al., 2010). There are nine deposits that the resources is more than 1 billion tons, and those giant iron ore deposits distributed approximately 2200 km² in the range (Fu Haitao et al., 2013), but a lot of the deposit due to the artificial division of the different segments of a mineral deposit called different deposits, hinder research mineralization laws of giant deposit. If the artificial division of the factors removed some deposit resources will be more than 3 billion tons in this area, and some amount of resources even more than 50 million tons, but the scope of the deposit is only 20-30 km². The distance between each giant deposit of only a dozen kilometers near, far not more than thirty kilometers.

China began to carry out giant deposit in the late 1980s research, but mainly concentrated in giant deposits in precious and non-ferrous metals, it is necessary for the distribution of giant iron ore deposits were studied.

1 Iron Construction Features

The area is located in the junction of JIAOLIAO platform uprise and HUABEI fault depression in Sino-Korean paraplatform Northern edge. Across the XIALIAOHE rift, TIELING-JINGYU station arch, TAIZHI River - HUNJING platform subside and YINGKOU-KUANDIAN station arch four three tectonic units. The Iron construction is banded magnetite quartzite in this area. Because the iron ore in the all rock group of ANSHAN group, so we customarily consider the ANSHAN group as the iron construction. The study area exposed ANSHAN group include 5 rock group, the bottom-up, they are SHIPENGZHI rock group, TONGSHICHUN rock group, CHIGOU rock group, DAYUGOU rock group and YINGTAOYUAN rock

group.

There are 6 giant iron deposit has been found in YINGTAOYUAN rock group, and 3 in CHIGOU rock group.

2 Giant Iron Deposit Features

There are 32 deposits that resource is more than Millions of tons. There are 5 giant deposit in ANSHAN deposit concentrated region, they are XIANSAN iron ore, DONGANSHAN iron ore, YANQIANSHAN iron ore, QIDASHAN iron ore and HUJIAMIAO iron ore. There are 4 giant deposit in BENXI deposit concentrated region, they are GONGCHANGLOING iron ore, DATAIGOU iron ore, SHISHANLING iron ore and NANFEN iron ore. The resource of those giant iron ore is from 1.01 billion tons to 3.4 billion tons (Bureau of Geology and Mineral Resources of Liaoning Province, 1989; Hong Xiuwei et al., 2010; Meng Xuyang et al., 2012).

5 giant iron ore deposits in Anshan pools are in close proximity, the farthest distance between DONGANSHAN and YANQIANSHAN iron ore is 18 km, while the XIANSAN iron DONGANSHAN iron ore, QIDASHAN iron ore and HUJIAMIAO iron ore are linked. 4 giant iron ore deposit in Benxi pool, relatively dispersed some distance between each deposit 10 ~ 18 km. YANQIANSHAN iron ore belong to Anshan pool, GONGCHANGLING iron ore belong to BENXI pool, the distance between this two giant iron ore deposits is 28 km, the distance is farthest between the existing giant iron ore deposits. This nine giant deposit located in the west about 85 km, 25 km north-south width of the rectangular area.

3 Iron Rock System Restore Original Rock and Genesis of Iron Ore

According to "Regional Geology of Liaoning Province" information, in the study area, the each rock group of outcropping ANSHAN group is acidic and mafic volcanic

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- sedimentary construction and containing ferrosilicon. Where: SHIPENGZHI and TONGSHICHUN rock group is built in mafic volcanic sedimentary rocks containing ferrosilicon; CHIGOU rock group is a sedimentary rock containing ferrosilicon mafic volcanic - sedimentary construction; DAYUGOU rock group is acidic volcanic rocks - sedimentary construction; YINGTAOYUAN rock group is containing ferrosilicon quality acidic volcanic sedimentary rocks - sedimentary construction.

SHIPENGZHI and TONGSHICHUN rock group at the bottom of the ANSHAN groups around the age of 2800Ma, the upper part of CHIGOU, DAYUGOU and YINGTAOYUAN rock groups metamorphic around the age of 2500Ma (Bureau of Geology and Mineral Resources of Liaoning Province, 1989).

Recently, it has been stated that ANSHAN-FUSHUN Archean layered rock series formed a new era in the late Archean, isotopic dating data between 2710 ~ 2470Ma (Lu Chonghai, 2013).

The giant iron ore was sedimentary-metamorphic iron ore in this area.

4 Conclusion

Discussed above can draw some of the following understanding:

(1) the area's giant iron ore deposits have been found mainly in the length of 85km, 25km width of the range, the maximum distance between the large iron ore is less than 30km.

(2) giant iron ore in this area are mainly distributed among CHIGOU and YINGTAOYUAN rock group, The deposit scale which in YINGTAOYUAN rock group is larger than the size of the deposit which in CHIGOU rock

group. Removing artificial division factor, there are multiple deposit that resource is more than 30 million tons of giant deposit.

(3) the district of ANSHAN-BENXI is one of most intensive areas of the giant iron ore.

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