News and Highlights

A Megaton Tungsten Deposit Discovered in Dahutang, Jiangxi Province

Jiangxi Province, China's largest base for tungsten production and export is known as the world capital of tungsten. By the end of 2002, there were 72 primary tungsten deposits found, with accumulated reserves and a proven resource of reserves of 1.9 Mt and 1.12 Mt, respectively, accounting for 20 percent of China's total reserves. Among them, 13 are large scale and 24 medium scale. After 50 years' mining, six shallow deposits out of 13 large-scale deposits have been exhausted or suspended in Xialong, Xihuashan, Hukeng, Pangushan, Dajishan, and Huangsha; and 11 out of 24 medium-scale deposits have been depleted in Haumeiao, Kuimeishan, Zuoba, Zhangdou, Shangping, Xiaolongwu, Maoping, Dangping, Daping, Baoshan, and Dalongshan, etc. Since 2010, 77 drilling machines were employed to work for 10 months to yield 19000 m of drilling, which indicates 970000 tons of metal in Dahutang, making a breakthrough in geological exploration.

The Dahutang tungsten orefield, municipally belonging to the Dahutang district of Jiujiang City, rests geologically on the southern margin of the eastern Yangtze plate, the convergent zone between the western Jiulin–Zhanggongshan uplift and the northeastern NNE-trending Wunin–Yifeng fault. This forms the northern section of the Dahutang–Tongan W(Sn)-Ta-Nb polymetalic ore belt. The metallogenic complex, which hosts the Dahutang tungsten deposit, consists of multiple intrusive bioitite-monzonitic and fine-grained porphyritic granites. Around the complex are five types of tungsten mineralization that jointly form the compound deposit: veinlet disseminated, quartz-pegmatite, quartz vein, greisen and breccia at the top of the complex (Fig. 1). This deposit is an epithermal, very shallow magmatic hydrothermal tungsten characterized by various types of closely clustered mineralization (Fig. 2). Mineral associations of the Dahutang tungsten deposit comprise wolframite-quartz-chalcopyrite, wolframite-quartz-cassiterite, wolframite-molybdenite-beryl, along with minor pyrite and sphalerite. The WO_3 grades of ores are 0.119%–0.229% for veinlet dissiminated ore and 0.375% for quartz-vein type orebodies. Silicification, sericitization, greisenization, and carbonization are the main alteration styles in the country rocks. Mineral associations in Dahutang vary greatly, with a high degree of mineralization and so the Dahutang area is favorable to exploration for large and rich deposits.

The exploration breakthrough in Dahutang has changed the traditional understanding of metallogenic theory in the Jiulin region. In the mineral species, discovery of scheelite

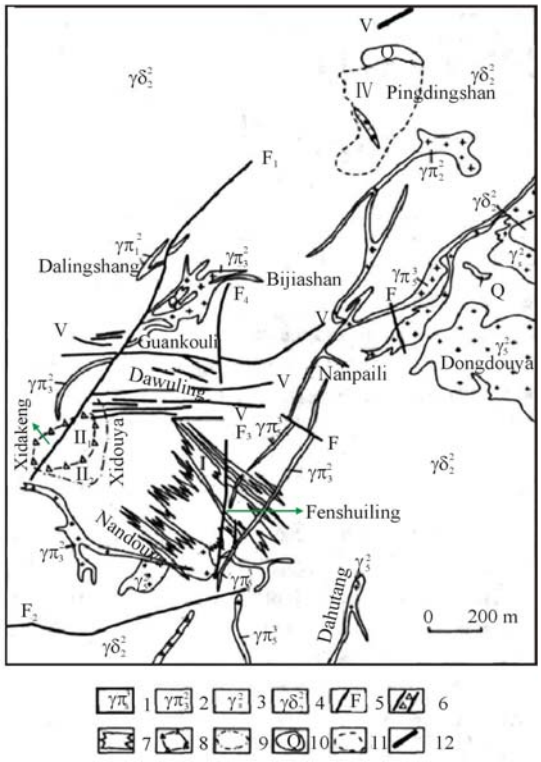

Fig. 1. Geological sketch map of the Dahutang tungsten ore district.

1, Late Yanshannian granite porphyry; 2, Mid-Yanshannian granite porphyry; 3, Mid-Yanshanian muscovite-biotite granite; 4, Late Jinningian biotite granodiorite; 5, fault; 6, silicified fracture zone; 7, quartz veinlet-type W deposit; 8, cryptoexplosive breccia-type orebody; 9, quartz veinlet-type orebody; 10, quartz pegmatite-type orebody; 11, greisen-type orebody; 12, quartz vein orebody (>0.1m) (based on Xibei Exploration Team of Jiangxi Province).

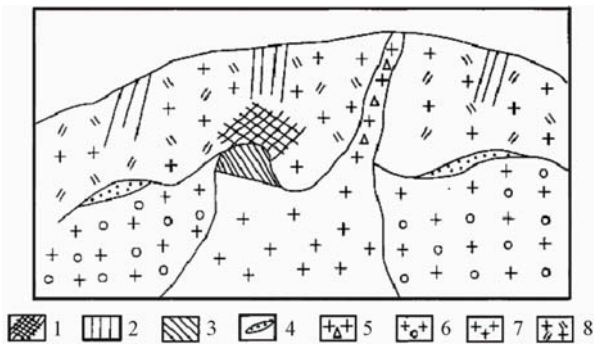

Fig. 2. Metallogenic model of the Dahutang tungsten (tin) ore filed.

1, quartz veinlet swarm type; 2, quartz vein type; 3, greisen type; 4, altered granite type; 5, cryptoexplosive breccia type; 6, early Yanshanian fine-grained biotite granite; 7, late Yanshanian fine-grained biotite-muscovite granite; 8, Jinningian granodiorite or Mid-Proterozoic epimetamorphic rock.

has converted the previous idea that only focused on wolframite. Of the ore deposits, discovery of the altered granite and hydrothermal cryptoexplosive breccia-type tungsten polymetallic orebodies, especially the thick veinlet–disseminated scheelite-dominated ore bodies in the Jingninian biotite granodiorite, may provide a new direction for exploration. (Provided by Hao Ziguo, Fei Hongcai and Liu Lian)

Gold Reserves of the Hadamengou Gold Deposit in Inner Mongolia Exceed 130 Tons

The Hadamengou gold deposit, located 15 km west of Baotou city, Inner Mongolia (Fig. 1), contains deep-seated faults and a large granite body. The deposit is hosted by the Neoarchean Wulashan Group metamorphic strata. Genetically it is a new type of alkaline-fluid pegmatite (K-feldspar + quartz veins), which was named the 'Hadamengou gold deposit type' by the Chinese geological community. Its discovery has filled a gap in gold-prospecting theoretical knowledge. This gold field including the Hadamengou and Liubagou deposits has an area of 62 square kilometers, with eight gold-vein swarms and 69 gold veins discovered (Fig. 2). There, the Hadamengou gold deposit hosts the Nos 1, 13, 24, 55, 59, 62, 77, 99 veins. The Liubagou gold deposit is dominated by the No. 313 vein, the outcrop of which is 6500 m long; it is 18.42 m thick at most, with the largest depth at 1600 m, having a highest gold grade of 22.63 g/t. Overall the deposit is characterized by stable Au-bearing veins, and thus it has great prospecting potential, with a single vein realizing the super-large gold deposit category. The average gold grade is 3.36 g/t, and the highest gold grade is 64.21 g/t. Since its discovery in 1986, continuous exploration has added to its reserves, and by September 2012, the cumulative gold resource exceeds 130 tons, suggesting that it is the largest gold deposit ever found in Inner Mongolia.

(Provided by Hao Ziguo, Fei Hongcai and Liu Lian)

Fig. 1. Location map of Hadamengou gold deposit, Inner Mongolia.

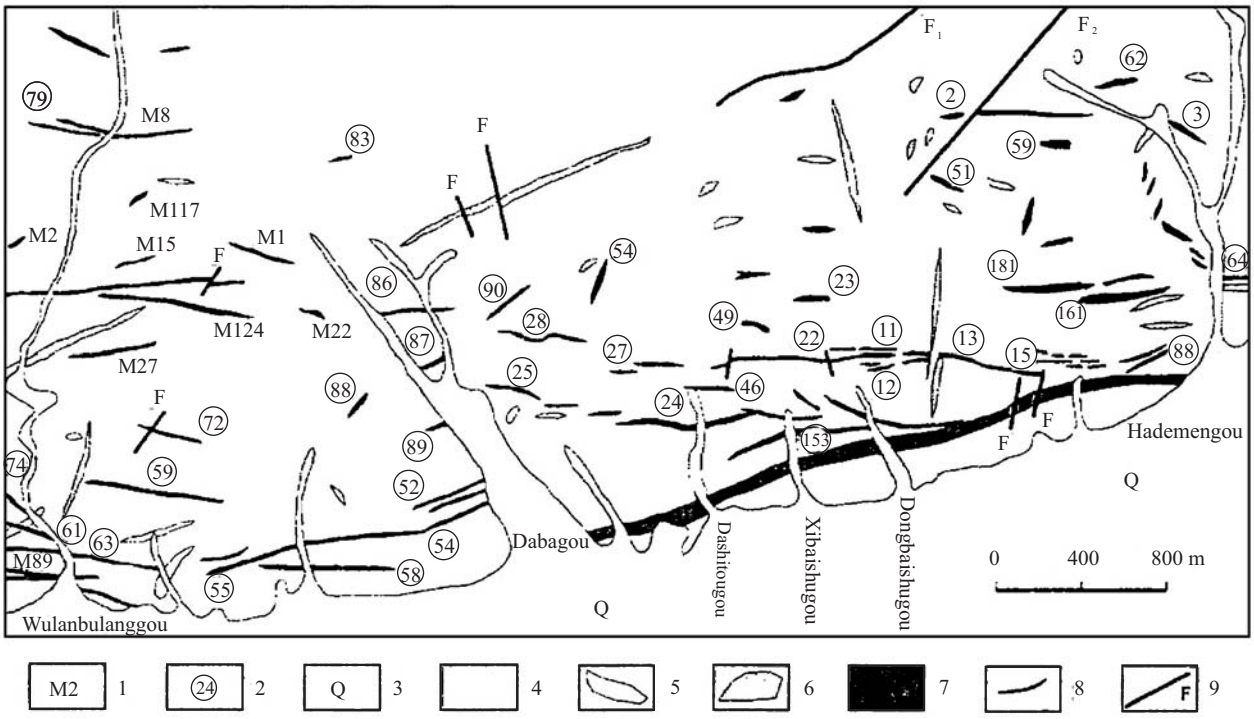

Fig. 2. Simplified geological map of the Hademengou gold deposit, Inner Mongolia.

1, Gold Force of the Chinese People's Armed Police No.11 team vein number; 2, Geological No. 105 team vein number; 3, Quaternary; 4, Archean Wulashan Group; 5, pegmatites; 6, diabase dikes; 7, potassic zone; 8, vein; 9, fault.