

TIN-BEARING ROCK TYPES IN KOREA

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ABSTRACT.—Tin deposits of Korea are nearly confined to the central east area of South Korea. They are mainly found in a N30W-trending Precambrian anticlinal belt. The original rocks have been subjected to considerable metamorphism, resulting in schists, gneisses, marble and quartzite. Granitic bodies of various ages are emplaced within the area. Most of the old granitic rocks appear to be synorogenic. Regionally, the Paleozoic and partly Mesozoic formations are developed in the north, and the Mesozoic formations are developed in the south from this belt.

Classification of tin deposits of Korea

Tin deposits of Korea can be grouped genetically into the following classes.

- A) Magmatic dissemination
 - 1) Albitite
 - 2) Quartz albitite
 - 3) Greisen
- B) Pegmatitic
 - 1) Pegmatite
 - 2) Aplite
- C) Hydrothermal
 - Sulfide vein and pipe

Albitite and quartz albitite

Albitite is widely developed in the Uljin area. It occurs mainly as sheets or rarely as dykes in the Pre-cambrian schists around the granite gneiss mass. Granite gneiss intrudes into the schists. Albitite sheets range from 0.3 m. to 15 m. thick in width and from 5 m. to 150 m. in extension. Albitite grades toward quartz albitite. Albitite sheets or dykes are greisenized along the contact with country rocks, but not always the case.

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Albitite consists of albite only or albite plus various amounts of sericite and quartz with minor disseminated cassiterite, grading to quartz albitite. In some quartz albitite, quartz partly has the form of veinlet parallel to the long direction of the sheets or dykes.

Greisen

As described above, greisens is developed mainly along the contact of albitite with schists. The contact of greisen and albitite is more or less gradational. It appears that albitite and greisen have been metamorphosed together with the country rocks. Sericites in greisen are aligned parallel to the general structure of the country rocks.

Greisen consists mainly of sericite (or muscovite) and quartz, with occasional major or minor amount of cassiterite, lepidolite, beryl, scheelite and fluorite. Greisen or strictly speaking, greisen schist (or sericite schist) is the main source of cassiterite in the Uljin area.

Pegmatite and aplite

Pegmatite is widely developed in the Sangdong area. In places, it accompanies aplite. Pegmatites are parallel to or cut the structures of the country rocks that consist of schists and gneisses. They range from 0.1 m. to 18 m. in width and from 10 m. to 600 m. in extension.

Pegmatite consists of very coarse-grained quartz, microcline and muscovite, with minor cassiterite, tourmaline and scheelite. Aplite also has the similar mineral composition. In places, pegmatite contains a lot of tourmaline. Pegmatite in granite gneiss in Uljin area has the mineral composition similar to that of the country rock.

Occurrence of cassiterite

Cassiterite occurs as aggregates or as isolated crystals that are characterized by short euhedral to anhedral prisms and dipyramidal terminations. However, some grains of cassiterite are more or less flattened or crushed.