

THE ROLE OF DEEP-SEATED BORON COMPOUNDS IN THE FORMATION OF DIAMOND, GOLD, AND TIN PIPES AND DEPOSITS IN THE EARTH CRUST

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MAJOR BORON PROVINCES CONTAINING DIAMOND, GOLD, AND RARE TIN PIPES ACCOMPANIED BY CU, ZN, AND OTHER ELEMENTS ARE FOUND IN THE EARTH CRUST. THEIR FORMATION IS ASSOCIATED WITH THE INFLUENCE OF DEEP-SEATED BORON COMPOUNDS, BORON HYDRIDES AND BORIDES OF DIFFERENT METALS, CHARACTERISTIC OF HORIZONTAL MANTLE WITH REDUCED METAL-FORMATION REGIME. BORIDES OF THE METALS OF CUB₂, B₂₂ TYPE (FORMATION TEMPERATURE 1060 °C AND 250°C CORRESPONDINGLY) OXIDIZED IN THE EARTH CRUST BECAME THE SOURCE OF ORE MATTER PARAGENETIC WITH TOURMALINE. BORON HYDRIDES OF B₁₀H₁₄ AND OTHERS TYPE WHEN COMING INTO MAGMAGENESIS CENTERS (MANTLE OR CRUSTAL) INTERACTED WITH WATER AT HIGH TEMPERATURES AND GENERATED HYDROGEN (ACCORDING TO REACTION $B_{10}H_{14} + 15H_2O = 5B_2O_3$ ($\Delta Z = 624.885$ KJAL AT 25°C). IN HIGH HORIZONS OF THE EARTH CRUST THIS HYDROGEN GOT OXIDIZED AND AT 200°C-100°C FORMED WATER, AS SEEN FROM REACTION $22H_2 + 11O_2 = 22H_2O$, THAT WAS ACCOMPANIED BY DROPS IN THE NUMBER OF GAS MOLECULES AND THEIR LOWERING PRESSURE OVER MAGMA INTRUSION. OFTEN FLUCTUATIONS OF THIS PRESSURE DUE TO TECTONIC MOVEMENTS INFLUENCED THE GAS INCOME REGIME AND DAMAGED THE SOLIDITY AND STABILITY OF GAS PASSAGE WALLS FORMED BY CROSSING VERTICAL FRACTURES. THIS FINALLY RESULTED IN THE FORMATION OF PIPES ALONG THE MAIN GAS PASSAGE OVER KIMBERLITE AND GRANITE INTRUSIONS. THIS TYPE OF PIPES IS FORMED WITHOUT MIGHTY BLASTS AS WELL AND, ACCORDING TO CHILEAN EXPERTS, HOSTS NON-SHIFTED BRECCIA HORIZONS.