PETROGRAPHIC DESCRIPTION OF METEORITES THIN SECTIONS FROM "JACEK SIEMIĄTKOWSKI COLLECTION". A. Krzesińska and J. Siemiątkowski, Instytut Nauk Geologicznych PAN, Podwale 75, 50-449 Wroclaw, Poland.

Introduction: This work presents petrographic description of meteorites thin section from Jacek Siemiątkowski collection. Thin sections were examined by optical microscope in transmitted and reflected light. Chondrites in this collection represent all type of thermally and shock [1] processed matter.

Results: The Baszkówka (L5) is the least processed chondrite in collection (except from Allende CV3.2), however was classified as L5 [2]. Chondrules are spheroidal, well preserved, most have granular surfaces. Their structure and texture of surrounding matrix actually correspond to type 5, but this is not effect of thermal metamorphism, but the conditions of formation and accumulation of chondritic fragments [3]. Baszkówka has two parts, which are different in shock effects, and porosity. The Mt Tazerzait (L5) [4] resembles these parts of Baszkówka, which are little shocked and little porous. Also not (or little) processed is the NWA-469 (L3), which, however, experienced weak shock metamorphism. Olivine crystals are "dusty" and have undulose extinction.

The Tsarev chondrite (L5) [5,6] experienced strong thermal and shock metamorphism. Chondrules are weakly distinguishable, matrix fine-crystalline. Isolated olivine crystals are dusty, mosaic-undulose and cut by planar fractures. In thin section is cataclasite vein (about 1 cm wide) consisting of black matrix and isolated, strong mosaic olivines (subgrains have about 5 μm diameter), which sometimes appear as relict chondrules. The chondrite is cut by thin shock metal–troilite veins. Opaque minerals are very tiny and dispersed.

There are three brecciated chondrites in the collection: NWA-869 (L3.9-6) [7], Ghubara (L5) [8] and Zag (H3-6), which have cognate and accidental xenoliths [8]. There are also some impact melt fragments. Xenoliths are not only different to each other in petrographic type, but they may also have experienced different shock history. The NWA–869 and the Ghubara have xenoliths with different shock stage, and different metal-troilite contents. Probably they have experienced repeated shock processes. The Zag has one xenolith, which is melted mater of host, with relicts of mosaic olivine grains (shocked).

Zakłodzie is unusual meteorite [9,10] consisting of enstatite, growth-twined plagioclase and kamacite-troilite aggregates. They have not chondrules, however some relicts are described [11]. This is either maximally metamorphosed enstatite chondrite or enstatite aubrite.

References: [1] Stöffler D., et al., 1991: Geoch et Cosmoch Acta 55: 3845–3867. [2] Borucki J. & Stępniewski M., 2001: Geological Quarterly 45: 229–256. [3] Siemiątkowski J., 2001: Geological Quarterly 45: 263–280. [4] Pilski A. S. et al., 2001: Geological Quarterly 45: 331–342. [5] Migdicova L. F. et al., 1982: Meteoritika 41: 13–30. [5] Syemenyenko W. L. & Samoylovitsh L. G., Meteoritika 41: 31–36. [6] Connoly H. C. et al., 2006: The Met Bull., No. 90, Met and Planet Sci 41: 1383–1418. [7] Binns R. A., 1968: Geoch et Cosmoch Acta 32: 299–317. [8] Karwowski Ł. et al., 2001: Mineralogical Society of Poland – Special Papers 18: 65-69. [9] Stępniewski M., et al., 2000: Met and Planet Sci 35: A219. [10] Przylibski T. A., et al., 2003: II Seminarium Meteorytowe. Olsztyn 2003. [11] Przylibski T. A., et al., 2003: II Seminarium Meteorytowe. Olsztyn 2003.