

# ON FORMER MINING AROUND STALLHOFEN/GRATSCHACH, OBERVELLACH COMMUNE'S EASTERN VILLAGES

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Summary. *In addition to Hohe Tauern's famous former precious and non-ferrous metals mines, which were extensively treated in literature, numerous less known and smaller-scale local mining activities (partly off Tauern area sensu stricto) are mentioned in primary and secondary sources. A few of such mines' nominal sites nearby Möll Valley's central settlement Obervellach in Upper Carinthia, Austria are reconsidered, and (additional) data on the Stallhofen pyrrhotite deposit are presented. The paper's aim is to add/record some details to/of Demoser's (2011) comprehensive treatment of the local mining history in his "Chronik der Marktgemeinde Obervellach" life's work.*

In memory of Dr. HEINZ LITSCHER, meritorious construction geologist,  
and of FRANZ CULETTO sen., my beloved father

## THE <IN DER GRAM UNTER DER GROSSEN »ZAIR«...> MINING REFERENCE

Information on *local*, less known precious and non-ferrous metals mining, even for the former mining-court-district Vellach centre's surroundings (= Obervellach /Möll Valley, Upper Carinthia including the villages of its rural commune) is scarce, which fits Wöllner's (1820, 124) diagnosis about the main valley itself. Scheuchenstuel (1829, 70), referring to several primary sources (= the fief-protocol for the years 1531 – 1546, mining court's "Raitungs-Buch" 1554 – 1566 and the later "Raitungs-Protocolle" 1655 – 1722), gives such a compilation of local mining sites, some of them maybe denoting mining rights only <sup>1)</sup>.

As targets in connection with the area considered in detail, he there lists a location <Am Gratschacher-Berg auf der Schattseite>, meaning at Gratschach mountain on the Möll Valley's shady side, and another one too – this maybe erroneously listed in the *Stall* instead of *Stallhofen* area context – recorded as <In der Gram unter der großen»Zair« ob der Eichel und bei Laitschach>. Latter site tentatively could be localized near Leutschach, and well above the Falkenstein castles<sup>2)</sup>, the elder spelling been Valchenstain (1164) and nidre(s)Valchenstayn (1307)<sup>3)</sup> (name's etymology maybe from a Walchen- or Walenstein, i.e. a stone/rock with mining-crucial data <sup>4)</sup> engraved for Venetian/Italian roaming diggers' communication/orientation, J. Tuppinger & H. Demoser, priv. com. 2009; such Walchen-linked toponym Falkenstein (Valchenstein) listed by Fräss-Ehrfeld 1984, 47 and cit.), and means a site with massive trees' stumps (F. Culetto sen., com. 2010) located below the larger of two landslides there. »Gram« approximately sounds like [grəun] in local dialect and likely is to blame for nearby Groneck peak's name. W of a plain called "Waldtratten",

1) See also Gruber's (2006, 333) remark, this in the Mallnitz mining sites' context

2) So Demoser, former draft version of Demoser (2011)

3) Čede, Lieb, Onitsch & Tuppinger (2005, 15)

4) Maybe <manentes Romanisci> (comp. Rochata 1878, 219) from a local Walen/Walaha settlement (see Demoser 2011 vol.II, 8f. et lit.cit.) could have been involved in such know-how coding. Local mining data likely played a minor role compared to access/distance data of Tauern area's rich mines (by FJC's view)

there is a serpentinite formation's outcrop, but this material lacking a visible sulphide-mineralization, and even magnetite absent (F.J. Culetto, unpublished; for local geology comp. Učík 2001/2005 and his posthumous edited/modified article in Demoser 2011, vol. II, 297ff.). Higher in the said serpentinite structure, as well as in the calc-(minor)mica-schist facies of (and below) the upper land-slide's area any ore mineralization excepting minor siderite is lacking too. The reported mining site maybe is to be looked for in the continuation (if any) of the Kaponiggraben greenschists' ore structures (see the upper one of the ore-veins crossing the Kaponig brook in Rochata's survey of precious-metal-bearing veins in Upper Carinthia, Rochata 1878, maps/appendix, and his 1878, 318 text passage referring to the Kaponig locations).

Eastwards, where the serpentinite formation crosses the Zwenberg brook and is its bedrock there at some distance of /below the Reißbeck hydroelectric power plant's local intake structure, at least magnetite in small amounts was detected (F.J. Culetto 2004, unpublished find; Učík most likely been aware of the locality earlier). In a quarry-like area, situated above the former construction site, a pyrite vein crossing the Zwenberg brook had been met (by then labourers' reliable tradition: so M. Hofer's and F. Culetto sen.'s independent statements agreed in that A. Juri, one of their colleagues then had taken a few pyrite samples, as big as his fist). Author's attempts at re-localization of that place, since been exposed to avalanche/mudflow/torrent activity over decades, were to no avail.

The <In der Gram unter der großen »Zair« ob der Eichel und bei Laitschach> site's diction would also allow for a further mine-location near *Leutschach* (one of commune's eastern villages), but also excellently fits as a specification of the site already described, probably lying about vertically above this small settlement. When excavating for stripe-foundation of a workshop's construction E next to Stallhofen No.14 by the author in summer 1989, relics specific to smelting (= weakly magnetic platy slag of two square decimetres total area and a furnace's structure-material, this coloured red-brown by thermal action) were found and tentatively dated late/end medieval from a nearby potsherd find (Culetto, unpublished). Next door but one above the access road, village Stallhofen ends and hamlet Leutschach's first of four rural objects follows. Summarizing, there remains considerable risk in site's given localization, the <in der Gram> mine been mentioned in a 1524 A.D. document together with Wölla Valley's mines "...darinn ligen drey wesentlich perkwerch heißen die groß und klein Welan und in der Gram", approx. meaning that there were three significant mines called <Große and Kleine Wölla> and <In der Gram> (Wießner 1950, 52/53, citing Kärntner Landesarchiv, Archiv Porcia, Urkunde Nr.67), so supporting Scheuchenstuel's (1829, 70) listing of it accessory to Stall /Upper Möll Valley area. Furthermore, the <Auf der Gron> toponym as well as the <Gronbach> watercourse (<Gronalm> too, in another map) indeed occur there (see KOMPASS Wanderkarte 49, Mallnitz-Obervellach), and landslide-like terrain above the "Gron" area is present there too (J. Reichhold, private communication 2010). The only criterion not fulfilled by this Wölla Valley's site is the mine's <...und bei Laitschach> (= ...and ±close to Leutschach) specification, if this is not just an artefact by contraction of two locations' names in the sources /Scheuchenstuel's 1829 quotation. Locations of similar toponyms, like the village Lainach (see Fig. within paper's References) and a former mining site above Stall castle named <in Laimbach> (Scheuchenstuel 1829, 70) are miles away from the "Gron" area. Additionally, the mining site's <ob der Eichel> (= well above an oak tree) characteristic indeed favours the said mine's near-Leutschach localization, oaks comparatively seldom

found on the Möll Valley's shady side. After all, the almost perfect double fit of place's characteristics indeed suggests the existence of *two* mines, thus likely causing confusion in the manuscripts' sites-listing.

#### STALLHOFEN PYRRHOTITE DEPOSIT, THE KREUZECK GROUP

As far as the <Gratschacher Berg> silver mining site (also Wießner 1950, 58 and lit. cit.) on valley's shady side is concerned, its re-localization was not successful yet either according to F.J.C.'s state of knowledge. Interestingly, its »Stallhofener Berg« *analogue* (not necessarily from ore mineralization, the Stallhofen pyrrhotite deposit been described by Rohrer 1921/1937, Gould 1981; on geological mapping Krainer 1980/81, and further information by Kallab 1939, Friedrich 1963, Cliff et al. 1971, Schmid & Seiberl 1982 as well as Ucik 2001/2005; mineralogical data by Niedermayr 2007/2011, from material collected there by E.Kofler; location's still visible features by Pichler 2009/Demoser 2011) is neither mentioned in the quoted primary sources nor is on C. Rochata's 1878 map of precious-metal-bearing veins in Upper Carinthia. As a tentative explanation about that by the author, who was born in Stallhofen, No.11 – a miners' home built in 1429, the date then carved into the room's ceiling beam, the whole object been wrecked in 1964 – a mismatch of the deposit's mining period and the documented time intervals is suggested. The home's construction date indeed favours earlier, i.e. 15<sup>th</sup> century mining activity (by-product(?) melted sulphur lumps' find in refurbishment communicated by Th. Culetto, part of these in charcoal granulate, the main filling stuff below the wooden floor, likely with an insecticide/insulating function). On the other hand, pyrrhotite-bearing material with drill-hole fragments <sup>5)</sup> was collected from the mining dumps (Culetto, unpublished), drill & blast method's use – as a rare event already been mentioned in 1655 for the Goldzeche location, Kleine Fleiß Valley near Heiligenblut (Scheuchenstuel 1829, 75) – indicating a later, possibly a 2<sup>nd</sup> mining period. But the (reconstructed) holes' radii-range had allowed for hammered into, (then got wet /frozen?) expanding wooden poles' use instead of gun powder too, so suggesting older age mining again. Reliable tradition by author's maternal grandparents (M. & A. Winkler, Stallhofen No.11) and by a former neighbour (T. Jamnig, Stallhofen No.15) says that in their younger years an adit was still open, with mining tools therein at a so-called "Sprungklapf-Riese" site, 150m vertically above the valley's bottom.

A sample, taken from approx. 40kg ore-material from the local mining dumps by the author in 1981 was analyzed via the then BBU-labs (I. Cerny, 1982 within the scope of the mining company's extensive deposits-research, data communicated by H. Litscher, KELAG). The detected metal contents in wt.-% and wt.-ppm (= g/t) thus are:

Fe 35.3%, Cu 0.31%, Zn 50ppm, Pb <10ppm, Ag <5ppm and Au <2ppm,  
Co 455ppm, Cr 440ppm, Mn 330ppm and Ni 110ppm,

steel-alloying components' content (1335ppm in total) pretty high, the metals partially from the accompanying minerals-mix of the matrix. In search of an ore specimen as typical as could be, chalcopyrite/pyrite in predominant quartz matrix was extracted from a sort of an eluvial (mini)placer of the Stallhofen pyrrhotite deposit from a "Pacher brook's" location. Not pyrrhotite but its accompanying precious metals bearing sulphides should have been objects of the local mining activities (so W.H. Paar, private communication 2009, cited in

5) Photo in Demoser (2011, vol.III, 34)

Demoser 2011, vol.III, 33), frequent occurrence of pyrrhotite bearing mined/native stuff nearby (there are several outcrops of the local ore structures) apparently supporting this view<sup>6)</sup>. Melting experiments, using ore material of approx. above cited analysis' chemistry (Culetto 1982, unpublished) yielded matte/Cu -"foil" containing multiphase products. So, ancient copper production probably is an option to be included too. A mined massive pyrrhotite piece of 326g wt. and collected by the author further down at the adit's access path, might indicate the copper-bearing massive ore's use for other purposes (maybe as addition in some other melting process). Alternatively, stuff occasionally surpassing the breakeven precious metals contents could have been found worth melting. And pyrrhotite deposit's outcrops, the rapidly weathering /decomposing material there smelling like hell in case of suitable humidity granted, should have triggered the local legend of devil's footprint (see Maierbrugger 1986, 140ff., also Demoser 2000; 2011) upon the staircase's third last stair – a white marble plate, unlike the others made from serpentinite, devil's footprint filled by concrete now – in Stallhofen's "Maria Tax (dialect term for a spruce, not from any taxation)" pilgrimage church. This is a local masterpiece of Gothic architecture, finished in 1521 and giving evidence of former economic strength, likely by flourishing mining activities too. Author's search for remains of the local ore-processing/smelting works was a fruitless enterprise, ubiquitous platy slag from former copper smelting in Schmelzhütten near Flattach, and from the historical gold /silver smelting in Vellach and Großkirchheim been observed in and along Möll's riverbed<sup>7)</sup>, and charcoal dust/pieces' residues (from the local continuous c. production) still detectable in several sections along the Möll Valley bottom's Stallhofen/Gratschach-area shady side. While forest road construction there in 2009, a few erratic blocks of pyrrhotite-bearing material (such, but alluvial, rapidly decomposing stuff had been found in 2003 at a small landslide below former "Laasbauer's" field by the author) were observed (Culetto, unpublished).

There is a faint indication that prospecting or exploitation of the Stallhofen pyrrhotite deposit (maybe for copper production only) could possibly go back to Roman times: In dry summers, part of the local Roman age road's(?) location route along the so-called "Pacher fields" beside federal route B106 becomes visible by reduced growth of the silage plants<sup>8)</sup> there (by own observations, and by H. Hofer, Pfaffenberg as well as by H. Hofer, Spittal/Drau, private communication). While summer 2010 a further strange maize growth-pattern of roughly square cross-section was observed too (Culetto, unpublished). The said route nearby Möll river's former course is bending towards (present-day) Möll river on the valley's shady side, almost in mine's direction, maybe bypassing a likely Roman age /late antiquity's colony not yet localized (see Demoser 2011, vol.II, 11 and lit. cit.). The road then eventually maybe bifurcated, its main returning towards route B106 again. So, the ore deposit in the vicinity of a *Roman age settlement*, relics of its cemetery i.a. found at the Stallhofen No. 39 domestic object's construction site by A. David sen., K. David and A. David jun., and their remarkable finds registered by the archaeologists G. Piccottini and F. Glaser (see Demoser 2011 and lit.cit., also Glaser & Schretter 1993, 736ff.), maybe was already mined in those days. When excavating for the local canal-network's construction, crossing Möll valley's bottom in some distance W of the said plant growth-anomaly area, no intersection with the main road was detected (by author's and the construction company personnel's check as noted in Demoser 2011, vol.II, 11). Thus

6) In Demoser (2011, vol.III, 33)

7) The problem in allocation of slag also noted in Demoser (2011, vol.III, 38)

8) In Demoser (2011, vol.II, 11)

the above mentioned hypothetical road's location route could be true. Alternatively, the old road (if such) could have been covered up by too much (fine-grain) alluvial material in its section probed.

#### FURTHER LOCAL MINING REFERENCES

Scheuchenstuel's (1829, 70/71) mining sites' compilation quoted probably contains geographical misclassifications too, for whatever reasons. If author's memory serves him well, the cases to be treated here were also noted in the draft version of Demoser (2011). One of these is the <Am Feistritzbach zu der rechten Hand unter dem Fußsteige, der am »Zwenberg« führet> (= at Feistritz brook, to the right-hand side below the footpath which leads to "Zwenberg", this as 'in monte Zebeinsperge' (1292) or 'Zewenperch' (1333) in the primary sources) site, attributed to Lieser Valley there but the location perfectly fitting the situation met E of the Zwenberg brook. This is the Obervellach commune's eastern border, watercourse's older name from Feistritzer, the landowner then and the terrain referred to called »Glanz«, a mining-related term (for galena). The location most likely is identical with (or at least pretty close to) Wießner's (1950, 58) "im Feistritzbach ober der Gampen (Gappen i. M.)" cited (but not yet re-localized) mining site. Preuss (1939, 52 and lit. cit.) re-derives this hamlet's name from Latin *campus* (= field, here the open fields of a large alluvial cone on Möll Valley's sunny side, E Gratschach). And of Scheuchenstuel's sites listed among "various dispersed points", the one called <Im »Strenigk« Graben> (ibid. 71), this for sure erroneously ascribed to Mühldorf's /Möll Valley mining area by Rochata (1878, 326 there correlating the location to paper's mining site mentioned right before) could formally meet Obervellach's »Stran« area too, the "(Ober)stranig" property being Stallhofen No.2, i.e. one of the two oldest objects. A mine somewhere there maybe fitted the historical Obervellach-silver-mining context. But the <Im »Strenigk« Graben> mine is to be localized SW of Kirchbach /Gail Valley in the Straniger Alm area (freytag & berndt Wanderkarte 223, Weißensee-Gailtal-Nassfeld, C3) in all probability, the site been listed among copper mines by Wießner (1951, 243 citing mention of it in a 1524 survey of Ortenburg county's mines, Kärntner Landesarchiv, Allgem. Handschriftenreihe, Nr. 2044). For details on other of Obervellach's historical mines /ore-processing sites is referred to special work by F.H. Ucik, E. Kofler, H. Prasnik, H. Demoser and A. Pichler (in Demoser 2011, vol.III, 31-53 and lit.cit.; there also photos and information of/on the Stallhofen pyrrhotite ore-deposit and its outcrops presented), Rochata (1878) and Wenger (1935).

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**Figure:** Points of reference and selected historical mines (✂, approximate position) mentioned in the paper and/or cited from the sources referred to.