Additional file 2: Metamorphism of Briançonnais rocks

Below we firstly present two figures from a jadeite-bearing gneiss from the Acceglio-Longet Band (Pelvo d'Elva unit): a macrophotograph (Fig. 1) and four backscattered-electron images (Images 1-4) illustrating the complexity of the peak and retromorphic mineral assemblages. The latter images were obtained at Ecole Normale Supérieure, Paris, using ZeissSigma field-emission-gun scanning electron microscope equipped with a large-area (50 mm^2) energy-dispersive silicon drift detector, X-Max Oxford Instruments, for standard-less analysis in carbon-coated polished thin sections using the Aztec software, Oxford Instruments.

Secondly, we present in Fig. 3 an exceptional sample of Triassic meta-tuffite extremely rich in pseudomorphs after lawsonite.

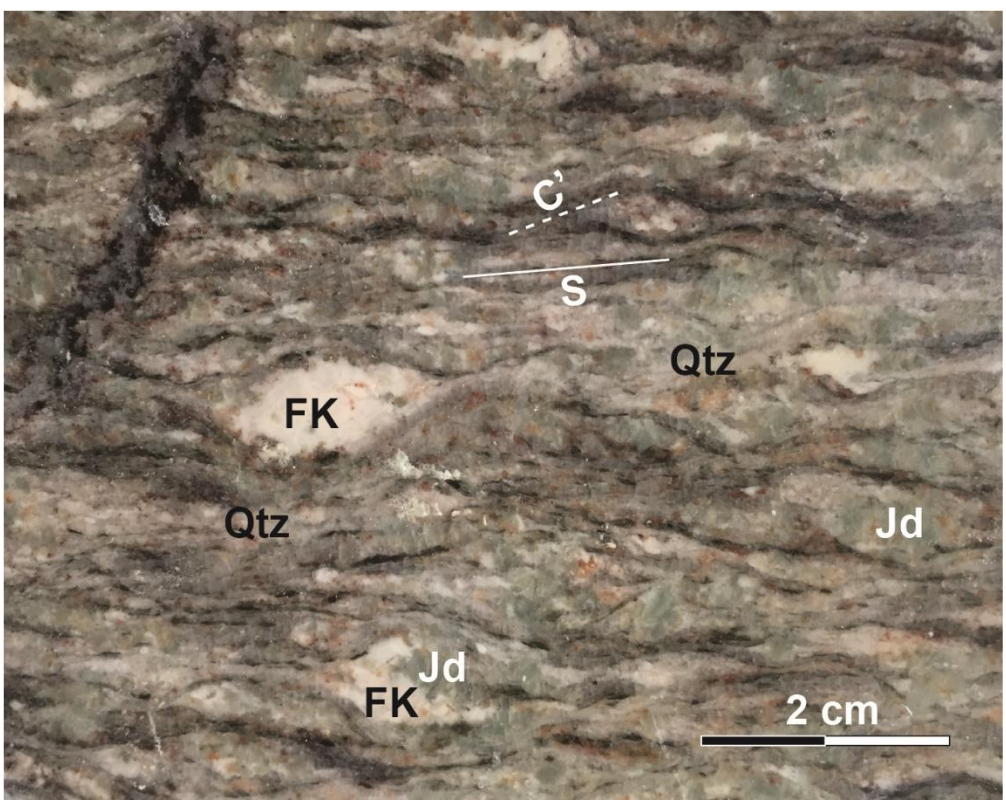

Fig. 1: D3 mylonitic structure of the jadeite orthogneiss of Grangie Sagneres (summit 2985), west of Pelvo d'Elva (Acceglio-Longet Band; location in Fig. 10, main text). Sawed sample Bel7313-41 (see microphotograph Fig. 9h). This gneiss is included in Unit 1b'' of Lefèvre and Michard (1976), which also contains biotite-garnet polymetamorphic schists. Abbreviations: C' = shear plane; S = foliation (broadly parallel to S3 in the adjoining units); FK = K-feldspar; Jd = jadeite; Qtz = quartz

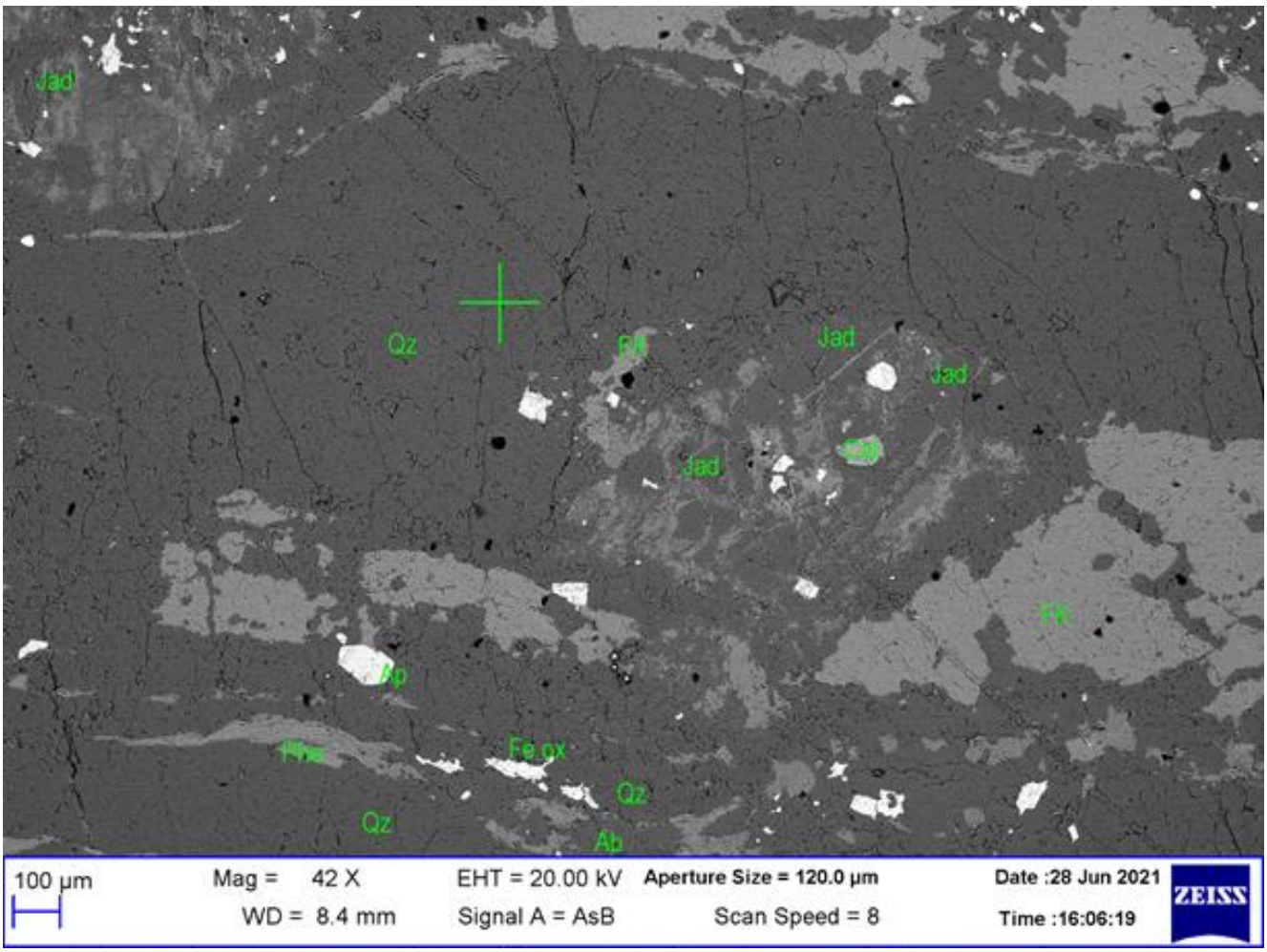

Fig. 2: Four backscattered-electron images from thin sections of the jadeite orthogneiss of Grangie Sagneres (see Fig. 1). Ab: albite; Ap: apatite; Cal: calcite; Fe-ox : Fe-oxide; FK: K-feldspar; Jad: jadeite; M: monazite; Phe : phengite ; Qz: quartz.- *Image 1*: At this moderate enlargement, the image compares well with that obtained under the optical microscope (Fig. 9h). The mylonitic foliation is clearly seen in the lower part of the field. The main high-pressure assemblage is quartz–K-feldspar–jadeite (occasionally with minor calcite or ankerite)–phengite, with minor iron oxide, fluorapatite, and accessory monazite, zircon, pyrite and molybdenite. Potassic feldspar is nearly pure (Ab1), jadeite as well (< 1 wt% FeO) and the large phengite flakes have high Si content (around Si3.4).

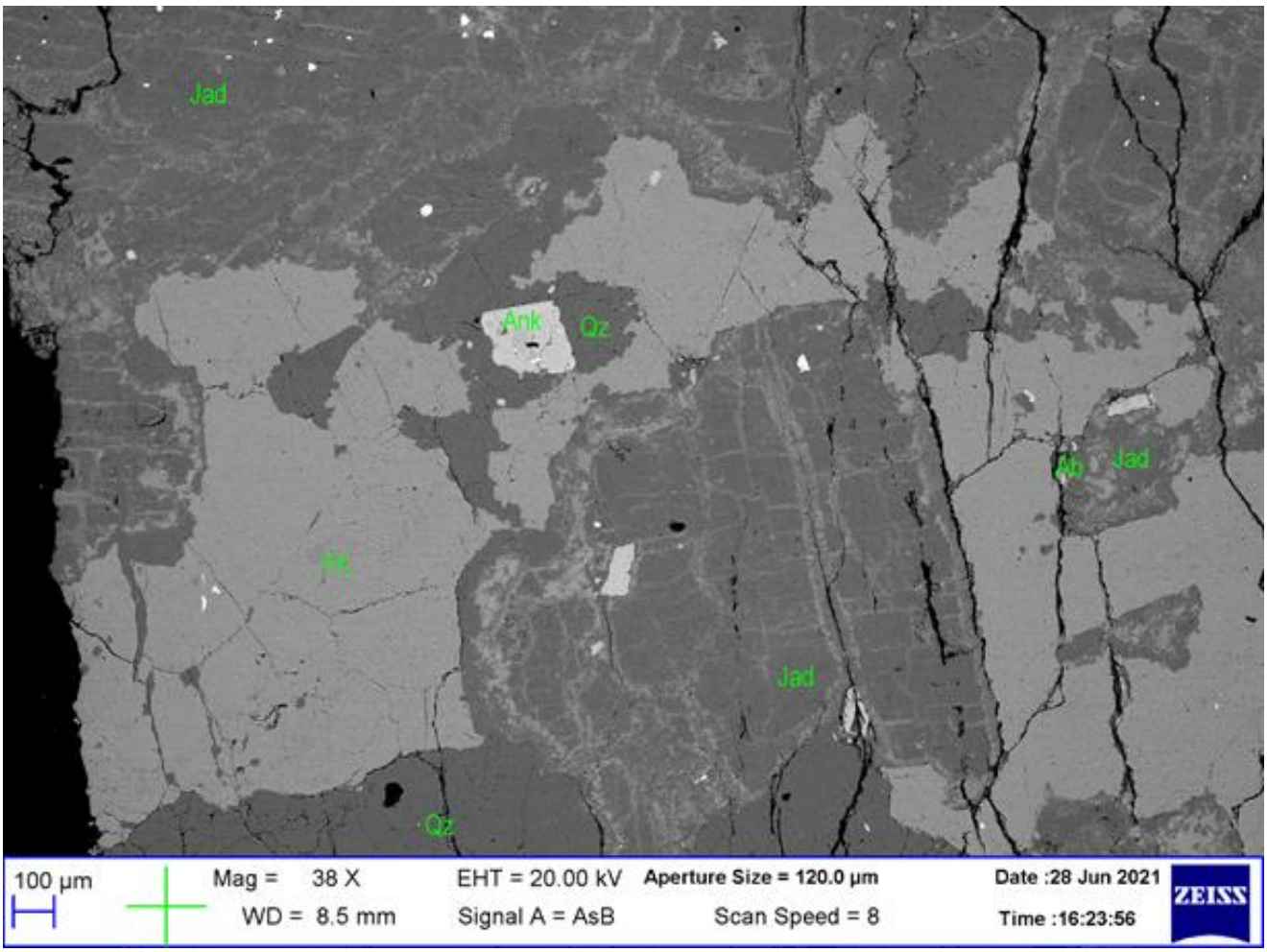

Fig. 2: (Continuation) - *Image 2*: A jadeite-rich area showing the typical high-pressure assemblage quartz–jadeite–K-feldspar(± carbonate) and incipient breakdown of jadeite along rims, cleavages and cracks.

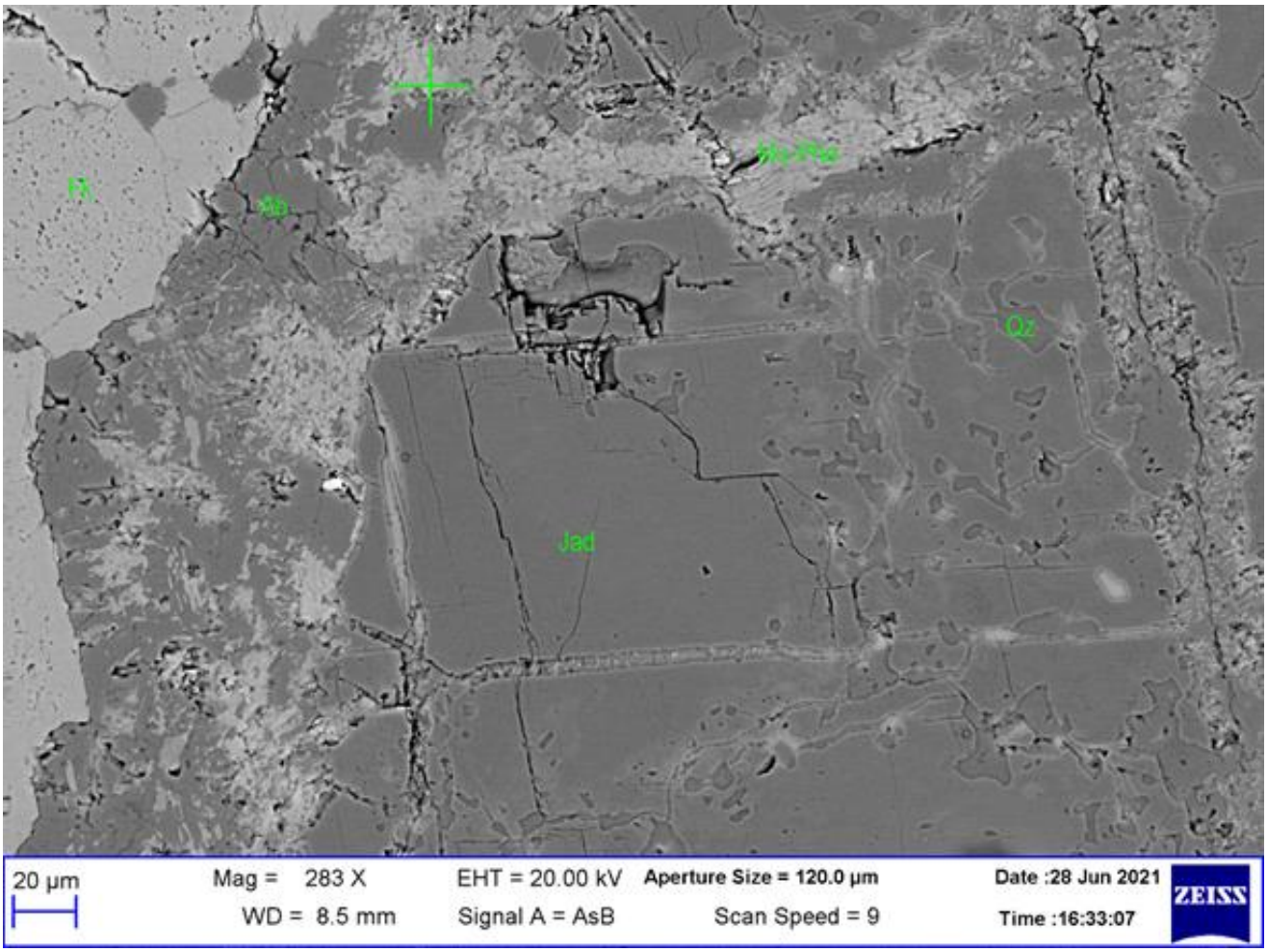

Fig. 2: (Continuation) - *Image 3*: Close-up of a jadeite crystal showing i) the tiny quartz blebs included in it, testifying for jadeite formation through albite breakdown, ii) incipient breakdown of jadeite to a mixture of albite and a low-Si phengite.

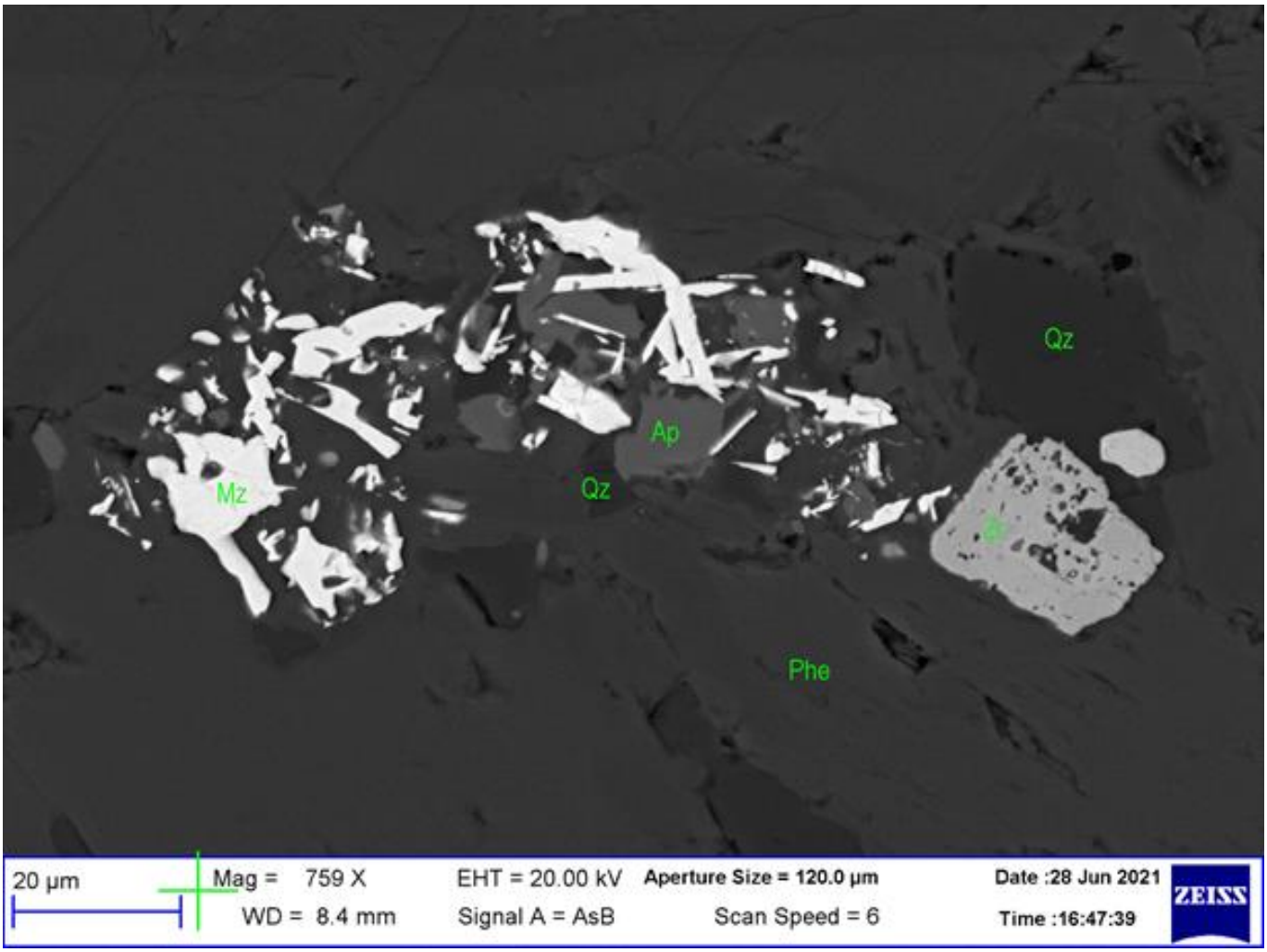

Fig. 2: (Continuation) - *Image 4*: Aggregate of monazite + apatite ± albite ± quartz, probably pseudomorph after an earlier REE-bearing phosphate (florencite?).

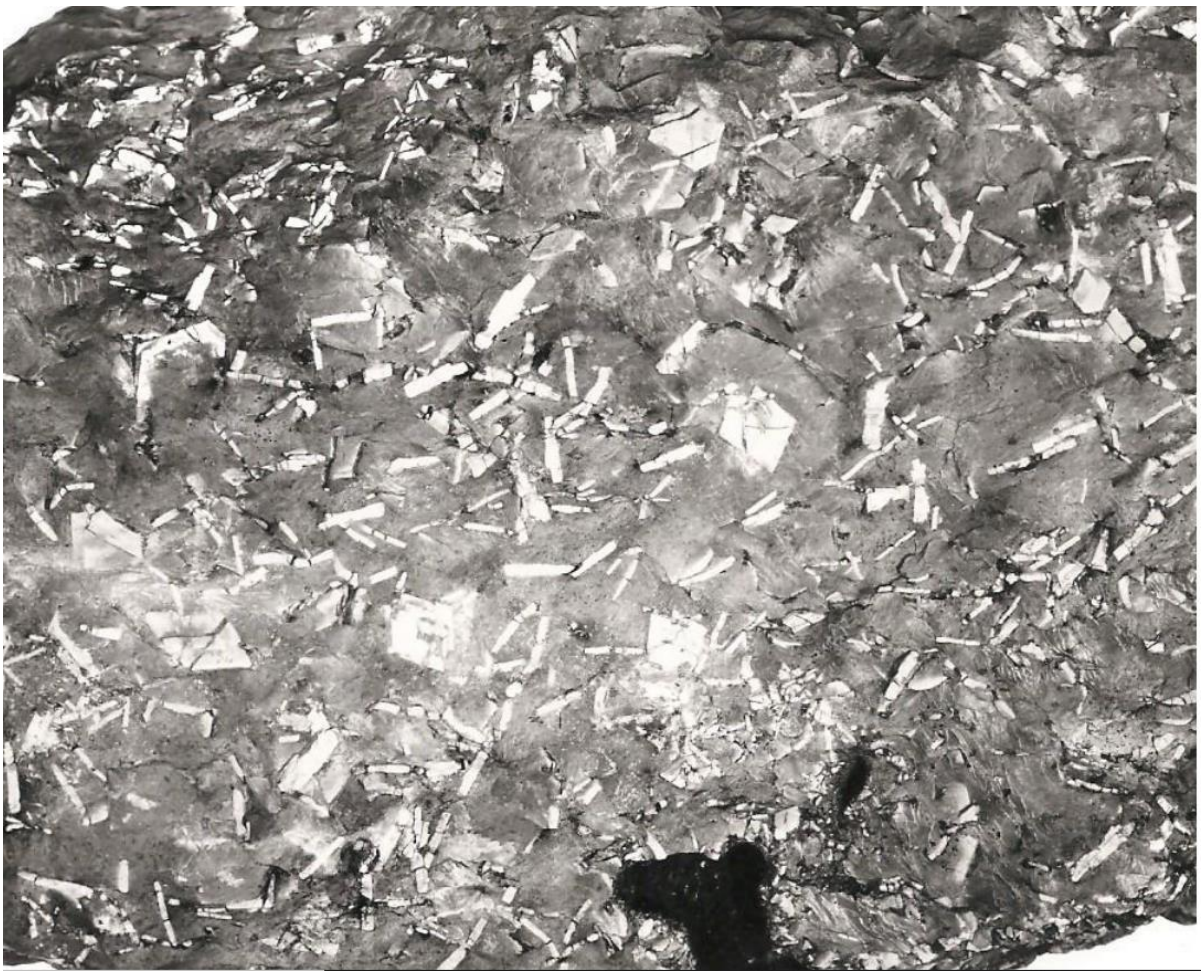

Fig. 3: Macrophotograph of a meta-tuffite sample from the Norian of Rocca Caire anticline (Val Grana). This unusual lithology is described in Michard (1967), p. 169-172, and plate 13, photos 1-3. Its chemical analysis is given (p. 171, table 5, columns 1-2 (bulk and recalculated eliminating CO2 as dolomite, respectively) consistent with a tuffite origin. The foliated matrix mainly consists of phengite and Mg-chlorite with accessory glaucophane, epidote, rutile, titanite, tourmaline, pyrite, magnetite. The embedded white tablets are mica-albite-epidote-chlorite pseudomorphs after lawsonite.