

Additional file 1: The “Prepiemonte”-type Val Grana unit; salient aspects and nomenclatural note

Before discussing the nomenclature, we first record in three figures the most salient aspects of the Prepiemonte-type Val Grana series after Michard (1967).

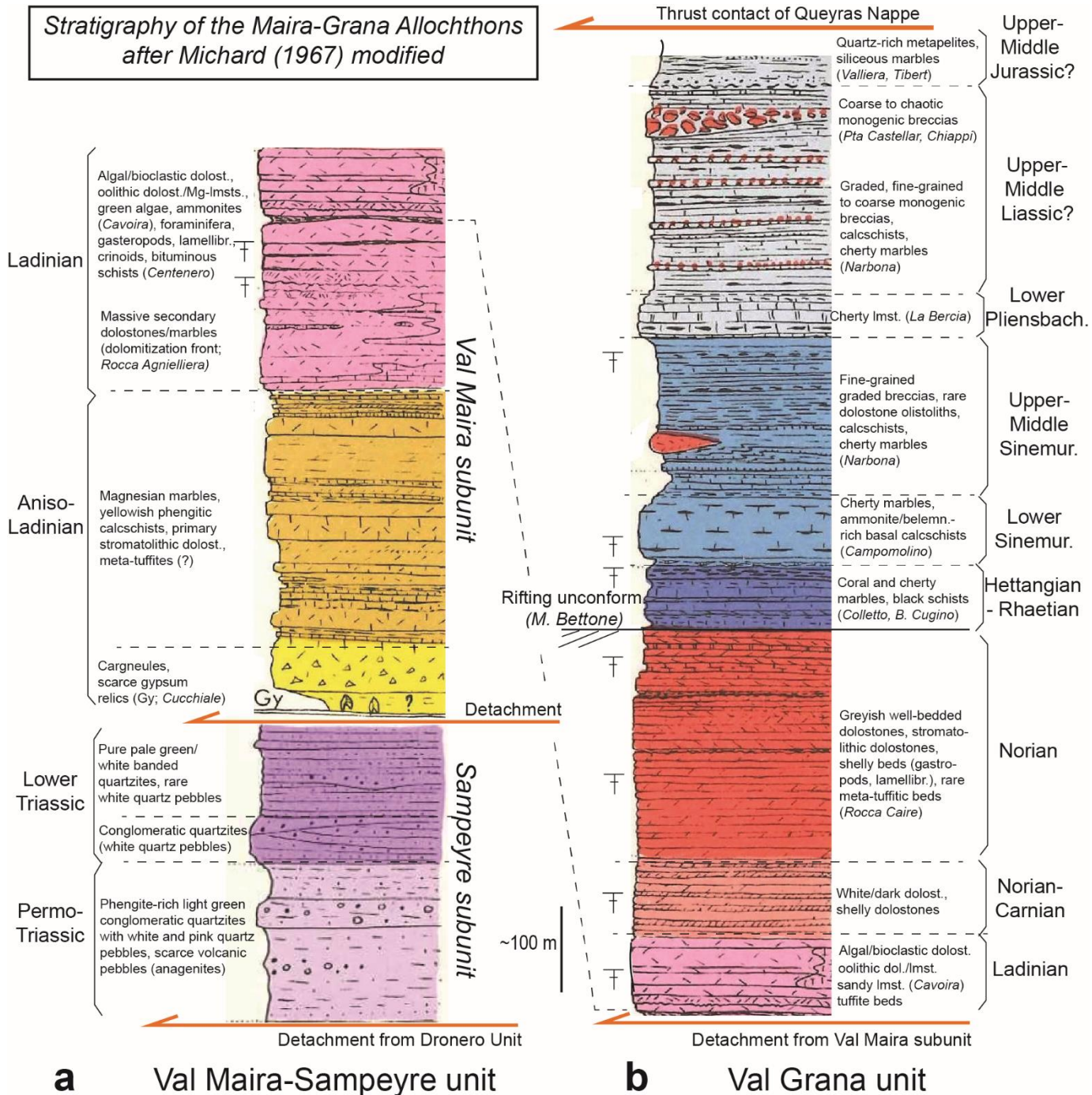


Fig. 1: Stratigraphic columns of the Triassic-Jurassic sequences of the Maira-Val Grana Allochthons, after Michard (1967), modified. Symbols “double F”: main stratigraphic fossil occurrences. The Rhaetian unconformity upon tilted Norian beds can be seen at the crest of the M. Bettone anticline (Fig. 3 below).

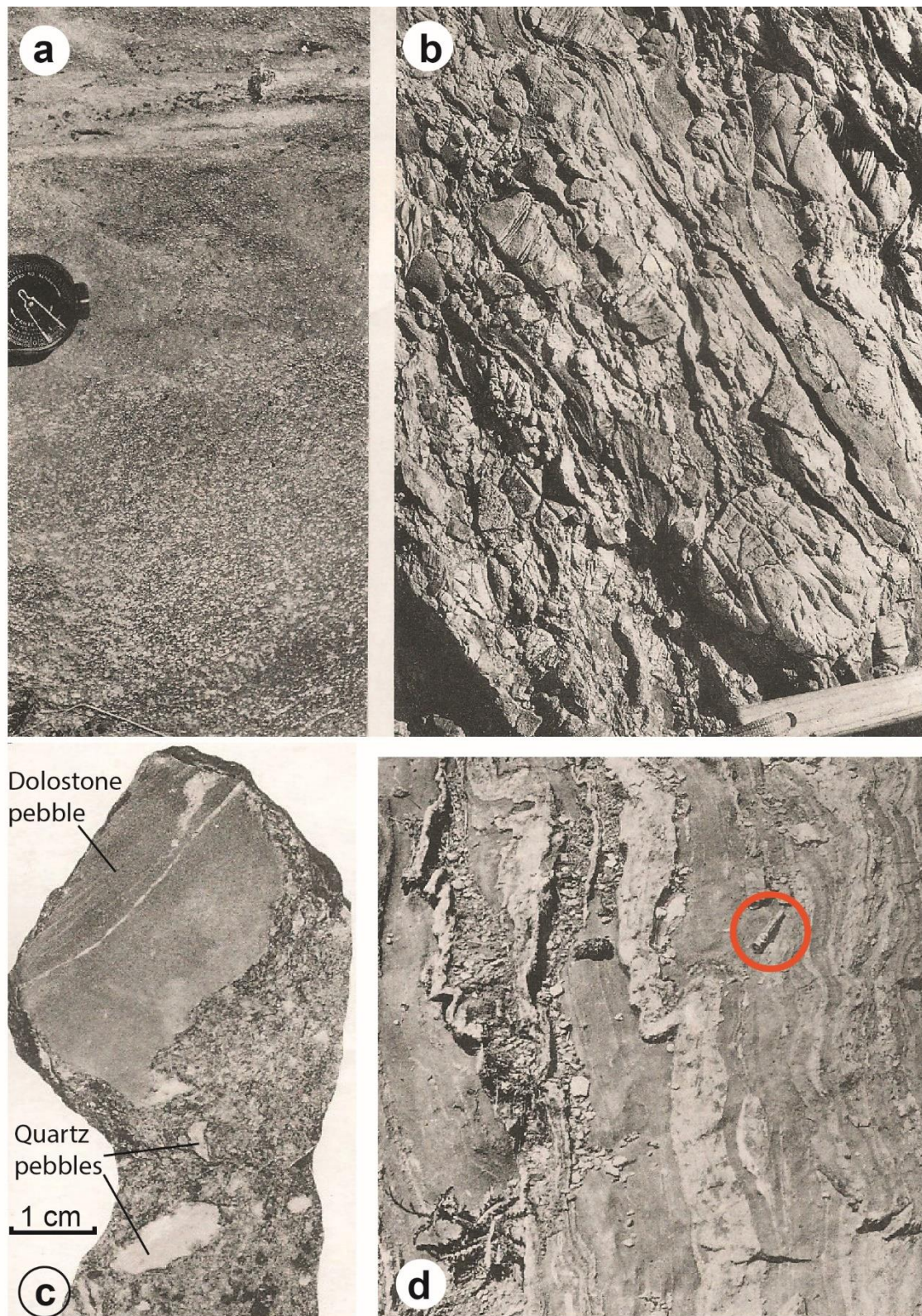


Fig. 2: Meta-sedimentary facies from the Val Grana unit after Michard (1967), plates 19 and 20. **a:** Graded breccia from the lower Sinemurian beds of La Croce next to Colletto; white elements are dolostone clasts. **b:** Coarse "monogenic" breccia (with only carbonate elements),

upper-middle Liassic (?), Punta Castellar above Chiappi; most elements are Upper Triassic dolostones showing brittle deformation while some dark limestones of probable Rhaetian-Hettangian age show strong ductile flattening. **c**: Polygenic breccia of the Valliera beds in Rio Albert, NW of Mte Plum. Quartz pebbles and minor clasts are associated with rare, larger dolostone pebbles. **d**: Banded siliceous marbles of the Tibert beds, lower cliffs of M. Tibert. Circled: marker for scale. **(c)** and **(d)** are undated facies, possibly Middle-Upper Jurassic.

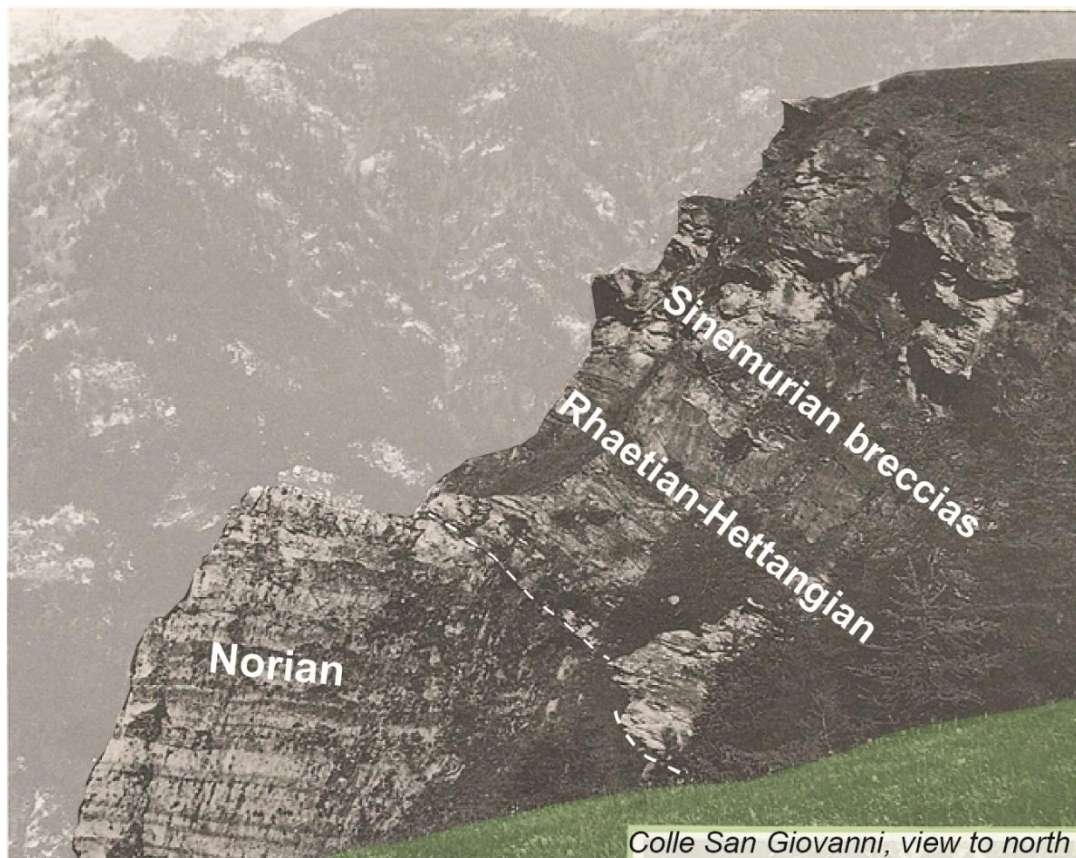


Fig. 3: Rhaetian unconformity over the Norian dolostones of the Mte Bettone anticline at Colle San Giovanni after Michard (1967), modified.

Following the record of the Prepiemonte (Prépiémontais or PrePiedmont) Val Grana unit stratigraphy, the second part of this file is devoted to a discussion of the nomenclature used in the literature for these kind of units and for the closely linked Acceglio-type units.

The closely linked “Prepiemonte” and “Acceglio” units: a nomenclatural note

The well-documented synthesis written long ago by Debelmas and Lemoine (1966) provides a good example of the puzzling historical definition of those units that crop out at the internal fringe of the Briançonnais *s.str.* domain, i.e. east of the backfolded Briançonnais nappes of the Briançon area. These authors describe lens-shaped slivers of crystalline basement and metasediments, which they call “Ecailles intermédiaires” and consider them “likely derived from the easternmost zone of the Briançonnais, i.e., the Acceglio Zone”. These slivers are tightly associated with Triassic dolostones accompanied with “Prépiémontais” Liassic series. The authors finally note that both types of slivers are wrapped into a gypsum and cargneule envelope and that together they mark the “major tectonic contact between the Briançonnais and Piémontais zones”. Revising the meaning of the various terms used by Debelmas and Lemoine (1966) in a modern paleogeographic framework of the Western Alps is mandatory.

The names of “Piemont” or “Piémontais” were formerly used to localize and better define the ophiolite-bearing “Schistes lustrés” of the Western Alps, whatever their apparent basement would be (e.g., Ellenberger and Lemoine, 1955; Elter, 1971). After recognizing the continuity between Alpine and Ligurian ophiolites as part of the same “Ligurian Ocean”, Lemoine et al. (1986) and Tricart et al. (1988) introduced the term “Piemont” or “Piémontais” to define a paleogeographic domain located to the east of the “Acceglio zone” and supposed to be transitional toward the Ligurian Ocean.

As for the term “Prépiémontais”, also spelled “PrePiedmont” (we favor “Prepiemonte”), its meaning unfortunately changed over the years. This term was firstly used for the thick Sinemurian formations of the Grande Motte unit of Vanoise (“Lias prépiémontais”; Ellenberger and Lemoine, 1955; Ellenberger, 1958), which ends with the usual Jurassic-Paleocene strata typical of the classical Briançonnais (Deville, 1986, 1987). This same term was later used for the so-called “Série du Gondran”, allegedly including Upper Jurassic marbles and radiolarites (Lemoine, 1961), then deprived of these layers (“Série du Gondran au sens strict”, ending in the Middle Jurassic; Lemoine, 1971). Subsequently, Lemoine et al. (1978) and Dumont (1984) defined the “Série de la Roche des Clots-Grande Hoche” that includes Upper Jurassic-Cretaceous beds as representing the most complete series of their “Prépiémontais domain”. Pantet et al. (2020) emphasized the “considerable confusion in the paleogeographic nomenclature of the domain located between the Briançonnais *s.str.* and the Piemonte-Liguria ocean (they label “Piedmont oceanic

basin”) but propose to use the term “PrePiedmont” for this transition domain at the eastern margin of the Briançonnais *s.str.*

The term “Acceglio zone” was originally defined (Lemoine, 1961, 1971; Debelmas and Lemoine, 1966) after the stratigraphic sequence found in the Acceglio-Longet and Roure-Combrémond bands, which are characterized by the lack of Triassic carbonates in an otherwise Briançonnais-type Mesozoic-Eocene series. Lefèvre and Michard (1976) introduced the label “Ultrabriançonnais” for the “Acceglio zone” paleogeographic domain. Although accepted by some authors (e.g., Barfély et al., 2006; Corno et al., 2021), this proposal is incorrect in that these units are not “outside” (“ultra”) the Briançonnais paleogeographic domain but inside: they correspond to that part of the Briançonnais *s.l.* continental domain that underwent a maximum of uplift and erosion during the Mid-Jurassic climax of the rifting process (Lemoine et al., 1986; Tricart et al., 1988). Moreover, the relationships of these units with those of the Briançonnais *s.str.* must be revised (see chapter 5.2.4).

Despite the above-mentioned nomenclatural problems it is clear that the various Acceglio *s.l.* units (derived from the Acceglio *s.l.* domain) and the Gondran/Roche des Clots-Grande Hoche “Prepiemonte” units are both continental units detached from the basement of the Briançonnais *s.l.* paleogeographic domain (Briançonnais terrane). Acceglio *s.l.* and Prepiemonte units were linked by source-to-sink relationships during the Early-Middle Jurassic rifting process. Therefore, we take these units, together with the Prepiemonte units, as representative of the part of the “Briançonnais distal margin” located east of the Briançonnais *s.str.* that represents the proximal margin (see chapter 5.2.4; Fig. 16b). We prefer to only keep the historical term “Prepiedmont” and its variations for individual series or tectonic units detached from the Briançonnais distal margin, but not for describing the entire paleogeographic domain located between the Briançonnais *s.str.* and the Piemonte-Liguria oceanic domain. This Briançonnais distal margin likely involved also other basinal (Prepiemonte-type) and uplifted (Acceglio-type) areas (Deville, 1986, 1987; Ballèvre et al., 2020; Pantet et al., 2020).