3.1.1. Stop 1 – Cellon section

The Cellon section is located in a narrow avalanche gorge on the eastern flank of Mt. Cellon, at an altitude of about 1500 m, at coordinates 46°36'32" N, 12°56'31" E, close to the Austrian/Italian border. It is reachable by a short walk from Plöcken Pass/Passo di Monte Croce Carnico (Fig. 7).

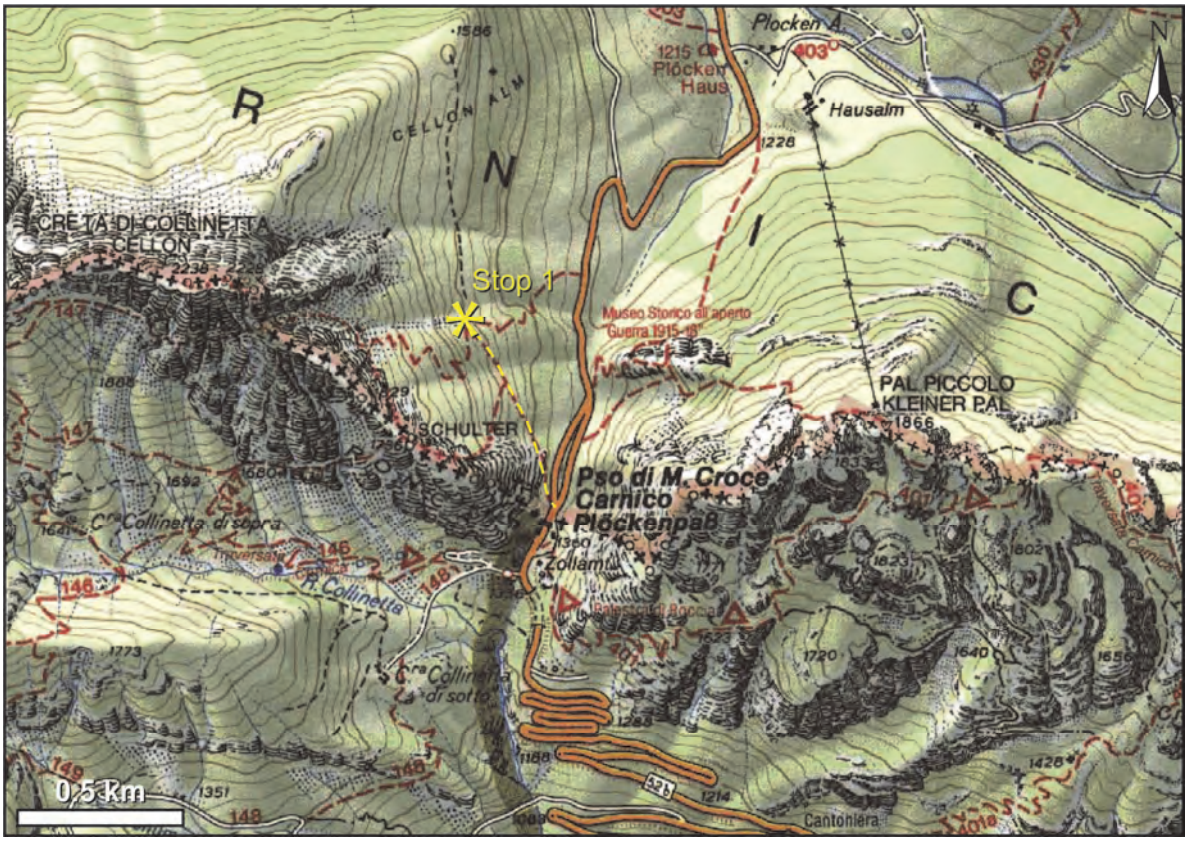

Fig. 7. Topographic map with indication of the itinerary of Day 1 and location of the Cellon section (stop 1).

It probably represents the most famous Silurian section in the world, and is the reference section for many Silurian studies. The conodont fauna from the section was studied and described by WALLISER (1964), whose pioneering work on the section included the first proposed Silurian conodont zonation. Subsequent studies on the Cellon section have documented the composition and distribution of several fossil groups, microfacies, isotope signatures, taphonomic and palaeoenvironmental indicators and eustatic sea-level changes (SCHÖNLAUB & LAMMERHUBER, 2009). For a complete review of the previous studies on the Cellon section, and a revision of the Silurian conodont biostratigraphy, refer to CORRADINI et al. (2015a).

The section exposes rocks from the Upper Ordovician to the Lower Devonian and represents the classical exposure of the Silurian "Plöcken facies". However, although the conformable sequence suggests continuity of sedimentation, several small gaps have been recognised, reflecting eustatic sea level changes in an overall shelf water environment (SCHÖNLAUB et al., 1994).

The following lithostratigraphic units can be recognised (from base to top) (Figs. 8–9):

1) Valbertad Formation. Lithology: greenish and greyish siltstones and shales. Thickness: More than 100 m. Age: Katian based on the occurrence of the deep-water *Foliomena* brachiopod fauna (HARPER et al., 2009).

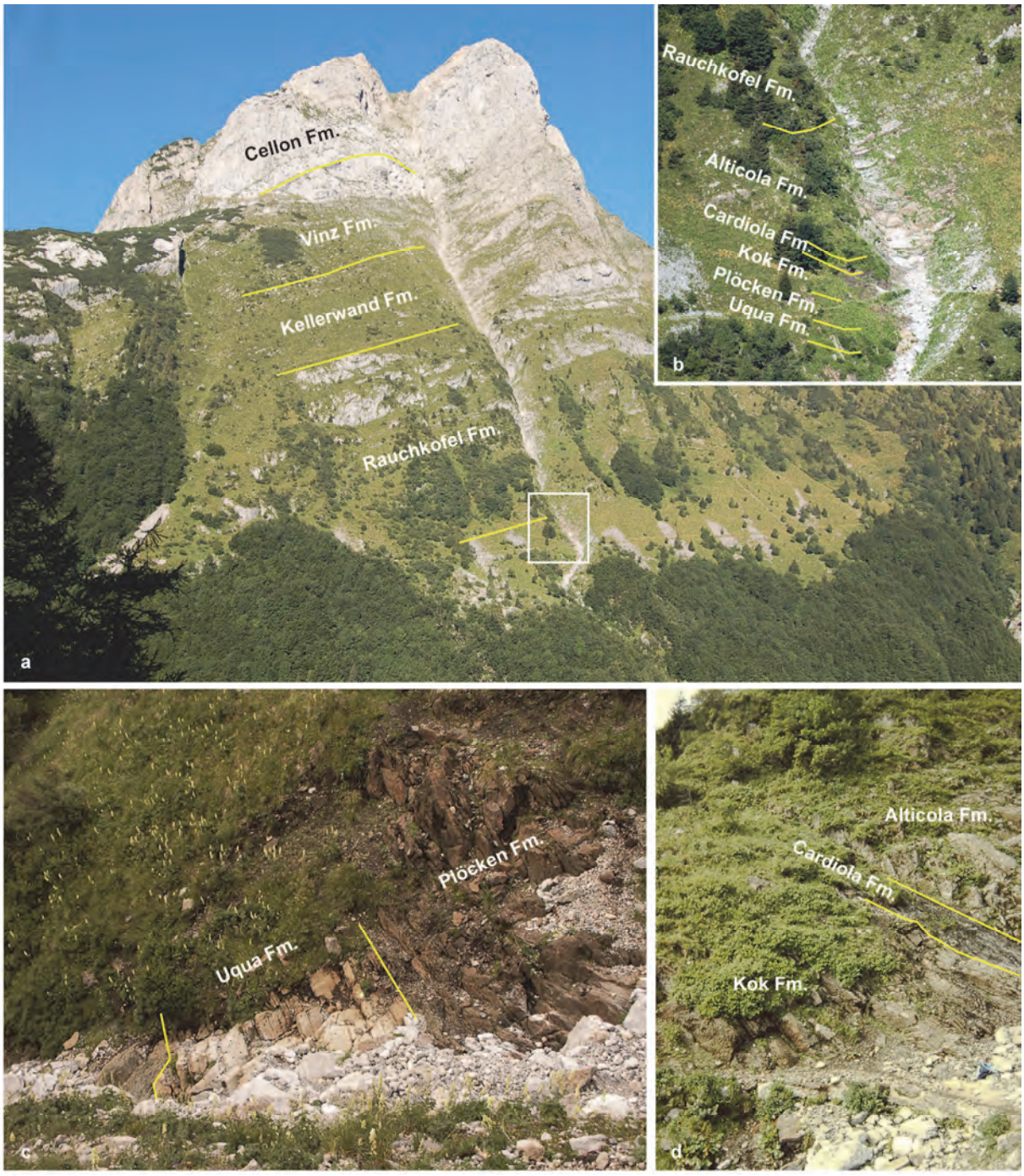

Fig. 8. General views of the Cellon section. a) Panoramic view to the west of Mt. Cellon/Creta di Collinetta, with indication of the lithostratigraphic units; b) Detail of the units of the Cellon section (box in fig.a); c) The Ordovician part of the Cellon section; d) The lower part of the Silurian sequence at Cellon section.

2) Uqua Formation. Lithology: Greyish to brownish flaser limestone with layer of bioclastic debris. Thickness: 4.96 m. Age: Katian (Upper Ordovician), *Amorphognathus ordovicicus* conodont Zone (beds 1–5).

3) Plöcken Formation. Lithology: Greyish siltstone intercalating with impure bioclastic limestone at the very base and grading into calcareous pyritic limestone and sandstone higher in the section. The lowermost strata of the formation are evidently of diamictite origin, the upper strata display contorted deformation structures, slumping, channel fillings and interbeds of fossil debris. Thickness: 6.17 m. Age: Hirnantian (Upper Ordovician), *Normalograptus persculptus* graptolite Zone (beds 6–8).

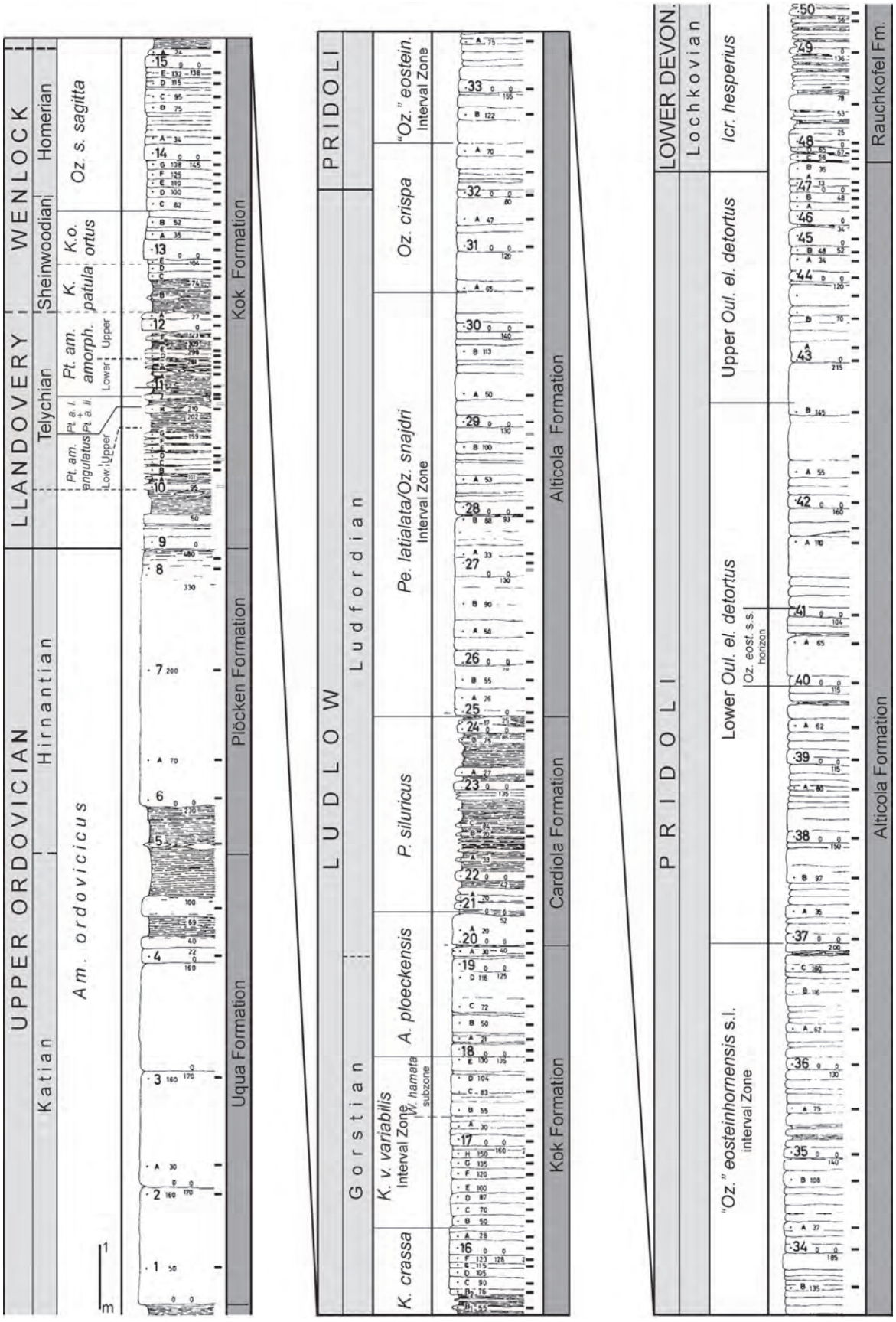

Fig. 9. Stratigraphic log of the Cellon section (after WALLISER, 1964) with indication of sample position, chronostratigraphy, biostratigraphy (after FERRETTI & SCHÖNLAUB, 2001 and CORRADINI et al., 2015a) and lithostratigraphy.

4) Kok Formation. Lithology: Well bedded brownish ferruginous nautiloid limestone, at the base alternating with black shale and marly interbeds. Thickness: 13.5 m. Age: Llandovery to Ludlow, *Pterospathodus celloni* SZ to *Ancoradella ploeckensis* conodont Zone (beds 9–19).
5) Cardiola Formation. Lithology: Dark grey to black limestone with marly and shaly interbeds. Thickness: 3.5 m. Age: Ludlow, *A. ploeckensis* to *Polygnathoides siluricus* conodont zones (beds 20–24A).
6) Alticola Formation. Lithology: Grey to reddish nautiloid limestone with some marly layers and coarse bioclastic interbeds. Thickness: 28 m. Age: Ludlow to Pridoli, *Pedavis latialata–Ozarkodina snajdri* IZ to *Icriodus hesperius* conodont Zone (beds 25–47B).
7) Rauchkofel Formation: Lithology: Blackish platy limestone with black marly interbeds. Thickness: 80 to 120 m. Only the lowermost part of the unit has been studied for conodonts and graptolites (WALLISER, 1964; JAEGER, 1975); a study of conodont biostratigraphy and revision of this part of the section is in progress (CORRIGA & CORRADINI, pers. comm. 2015). Age: Lochkovian (Lower Devonian), *Icriodus hesperius* conodont Zone (bed 47C and above).

Higher in the mountain, the Kellerwand, Vinz and Cellon Fm. are exposed.
The Cellon section is the type section for five lithostratigraphic units: Uqua Fm. (SCHÖNLAUB & FERRETTI, 2015b), Plöcken Fm. (SCHÖNLAUB & FERRETTI, 2015c), Kok Fm. (FERRETTI et al., 2015a), Cardiola Fm. (FERRETTI et al., 2015b) and Alticola Fm. (FERRETTI et al., 2015c).

In terms of chronostratigraphy, several boundaries can be traced along the section (SCHÖNLAUB & KREUTZER, 1994, CORRADINI et al. 2015a):
- the Katian/Hirnantian boundary can be tentatively traced at the transition between the Uqua Fm and the Plöcken Fm., even if an earliest Hirnantian age cannot be excluded for the uppermost part of the Uqua Fm.
- the Ordovician/Silurian boundary is drawn between the Plöcken and the Kok Fm. It should be noted that a large hiatus is present, since most of the Llandovery, up to the Lower *Pt. am. angulatus* Zone (*Pt. celloni* Superzone), is not present.
- the Llandovery/Wenlock boundary (= Telychian/Sheinwoodian boundary) is located within the short black shale interval between samples 12A–12B. Most of the Sheinwoodian is missing, since the graptolite *M. rigidus* was collected from this interval (JAEGER, 1975) and many conodont zones are not represented (sample 12B already belongs to the *K. patula* Zone).
- the Sheinwoodian/Homerian boundary cannot be precisely located. It occurs in the lowermost part of the *Oz. s. sagitta* Zone, tentatively around bed 13E.
- the Wenlock/Ludlow boundary (= Homerian/Gorstian boundary) cannot be precisely located because most of the upper Homerian is missing. However, it can be traced within the black shale level between samples 15A and 15B1 by the occurrence of *K. crassa* in the latter.
- the Gorstian/Ludfordian boundary can be traced only approximatively within the *A. ploeckensis* conodont Zone.
- the Ludlow/Pridoli boundary is located in the narrow black shale level just above sample 32, by the occurrence of *M. parultimus* (JAEGER, 1975). In terms of conodont stratigraphy it occurs in the upper part of the *Oz. crispa* Zone, since the index taxon is present up to sample 32A (CORRADINI et al., 2015a).
- the Silurian/Devonian boundary is placed in the uppermost part of the Alticola Fm., at the bedding plane between sample 47A and 47B, at which the first representatives of the index conodont *Icr. hesperius* occur.

References: WALLISER (1964), SCHÖNLAUB (1980), SCHÖNLAUB et al. (1994), HISTON et al. (1999a), BRETT et al. (2009), CORRADINI et al. (2015a).