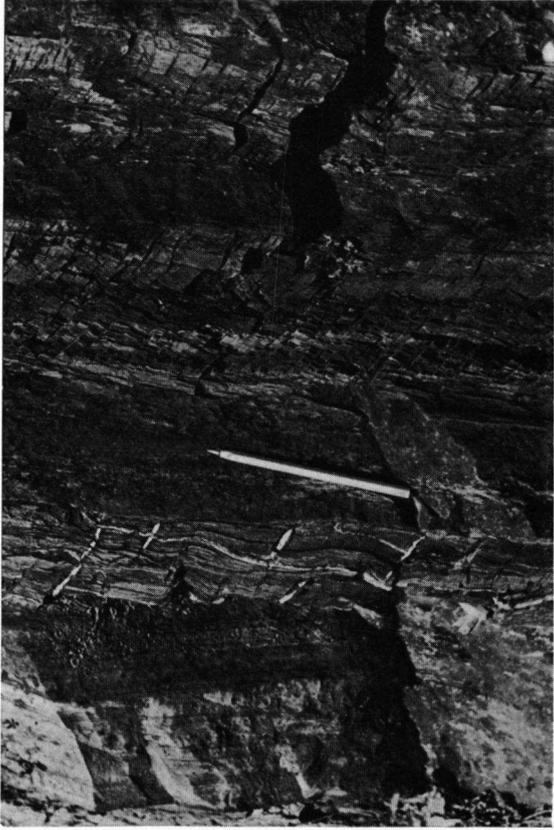


PLATES

PLATE I

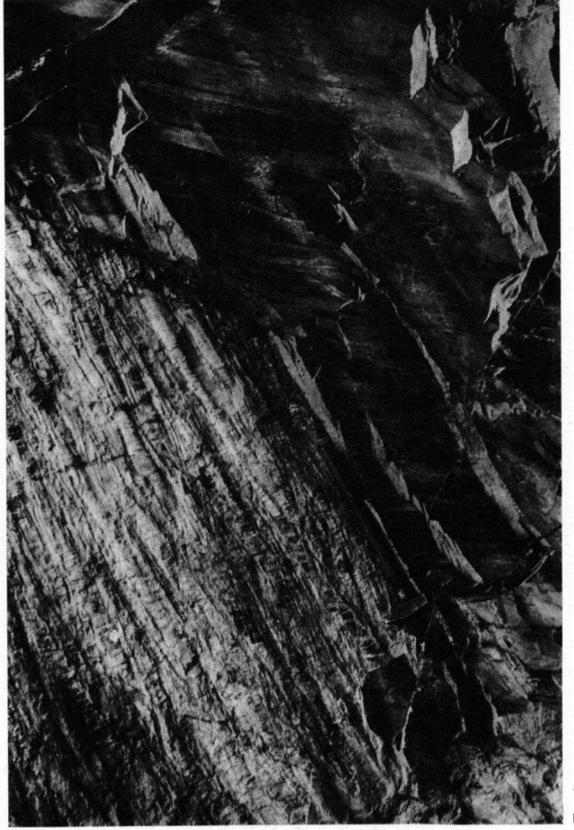
- a. Interbedding of Albian marls and marly limestones in a quarry between Vicdessos and Auzat. The S_1 -cleavage dips steeply to the south (parallel to the ink pencil). The S_2 -cleavage, dipping some 40° to the north, has been developed only in the marls.
- b. Three lineations on the S_1 -cleavage plane. Same locality as Plate I, a. The bedding-cleavage (S_1) intersection (I_1) plunges steeply to the west (parallel to the ink pencil). The S_1 - S_2 intersection (I_2) is almost horizontal. The S_1 - S_3 intersection (I_3) plunges steeply to the east.
- c. Albian marls and marly limestones, near the easternmost bridge of Vicdessos. Minor F_2 -folds plunge to the east (parallel to the hammer). The marls (upper lefthand corner) are broken along planes normal to I_3 (ac -joints), on which calcite veins are developed.
- d. Hand specimen of Albian marl from the same locality as shown in Plate I, c. The calcite veins along the ac -joints having a seam in the middle contain S-shaped calcite fibres. The calcite fibres have no undulatory extinction. Consequently, they grew syntectonically during the second Alpine phase, while rotation of the marl fragments occurred.



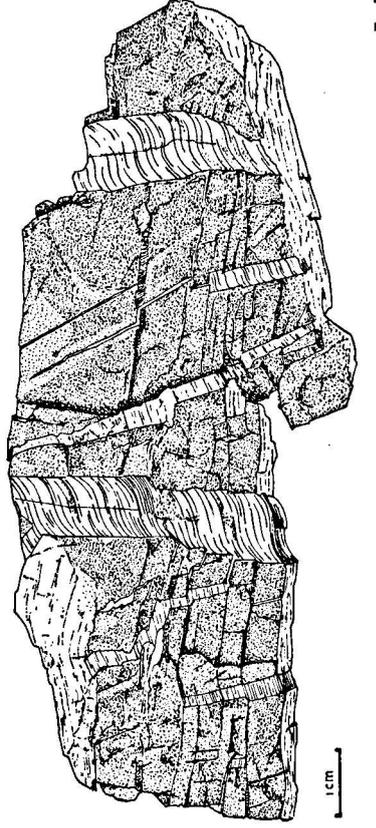
I a



I b



I c



I d

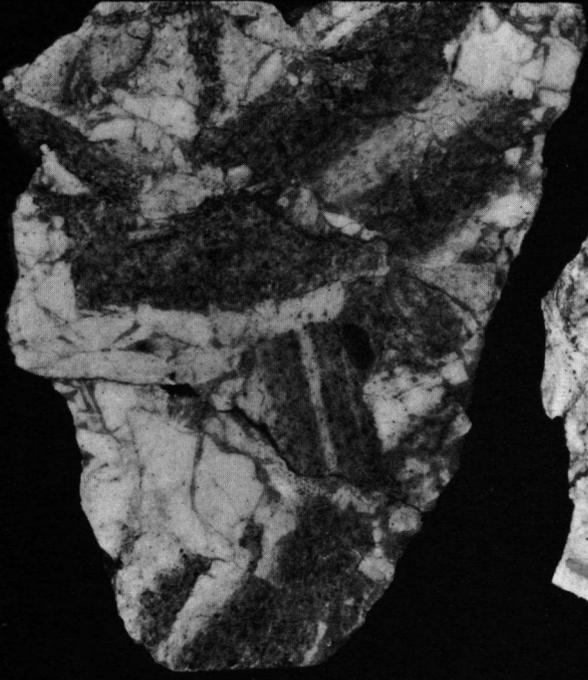
PLATE II

- a. Partial brecciated limestone. The bedding plane is still recognizable. (3/10 ×)
- b. Totally brecciated limestone. The bedding plane is no longer recognizable. (2/3 ×)
- c. Totally brecciated limestone, deformed by an Alpine cleavage. (3/4 ×)
- d. Limestone breccia with two lherzolite fragments. Thin concentric bands consisting of spinel, pyroxenes, serpentine, and iron-oxide powder lie around these fragments, possibly representing flow lines. (7/10 ×)

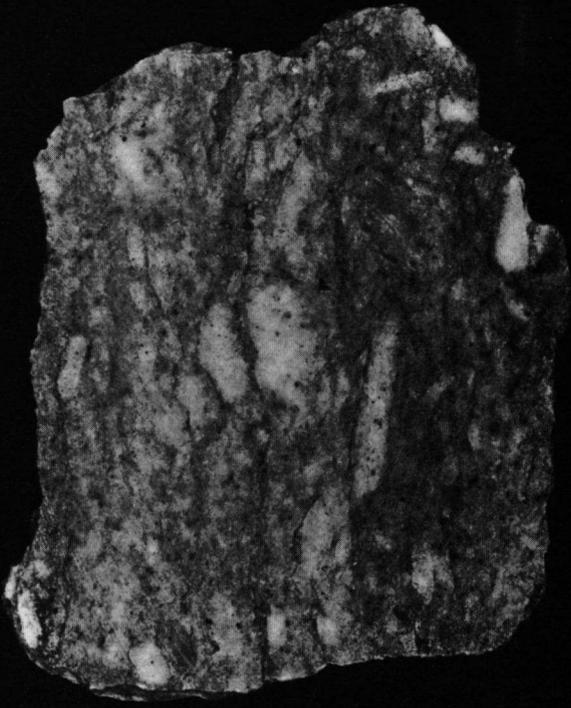
II a



II b



II c



II d

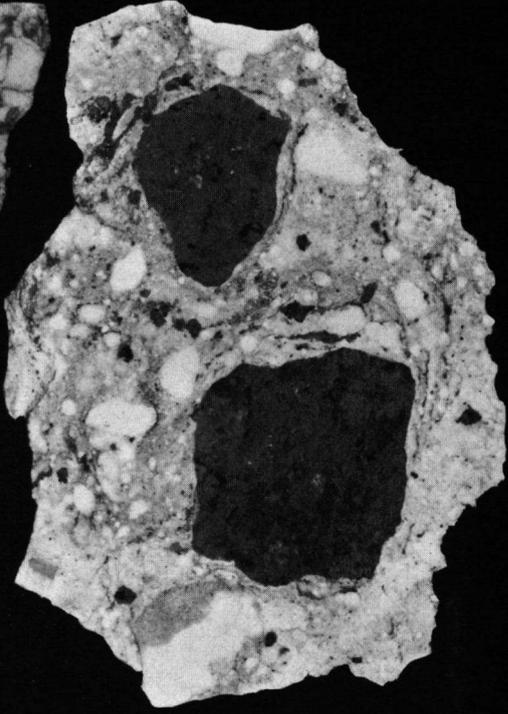


PLATE III

View from the Mont Béas to the east. The Iherzolite body of the Etang de Lers is easily recognized between the Cretaceous marbles. Near the transition from the rocky terrain to the pastures in the upper lefthand corner lies the shear-off fault between the Mesozoic and the Hercynian external massifs.



PLATE IV

a. Lherzolite breccia without much matrix. (Etang de Lers)

b. Lherzolite breccia with matrix: a lherzolititic microbreccia. Some bands of coarser material in the microbreccia suggest flow. (Etang de Lers)

c. Lherzolite breccia with a calcareous matrix, containing some lherzolititic microfragments, at the southern contact of the lherzolite body of the Etang de Lers with the limestones.

d. Lherzolite breccia with homogeneous lherzolititic microbreccia (Sample L-59). (Etang de Lers)



IV a



IV b



IV c



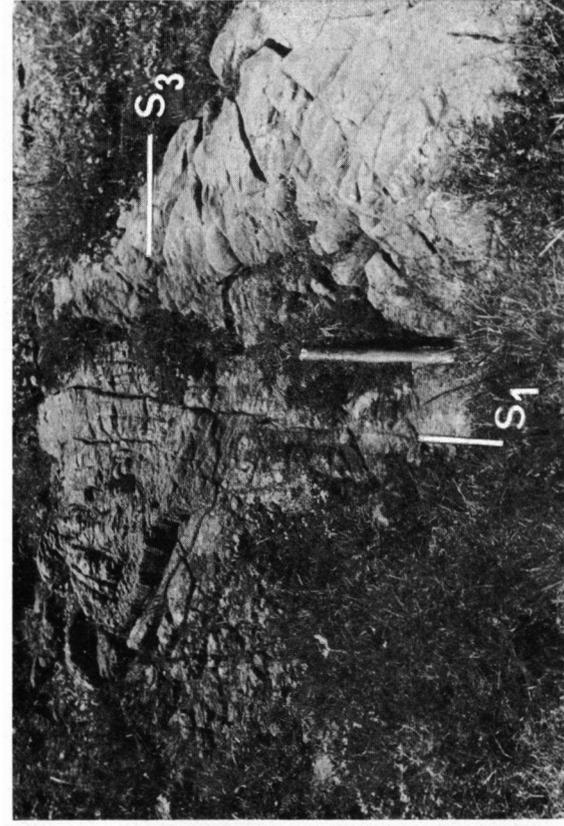
IV d

PLATE V

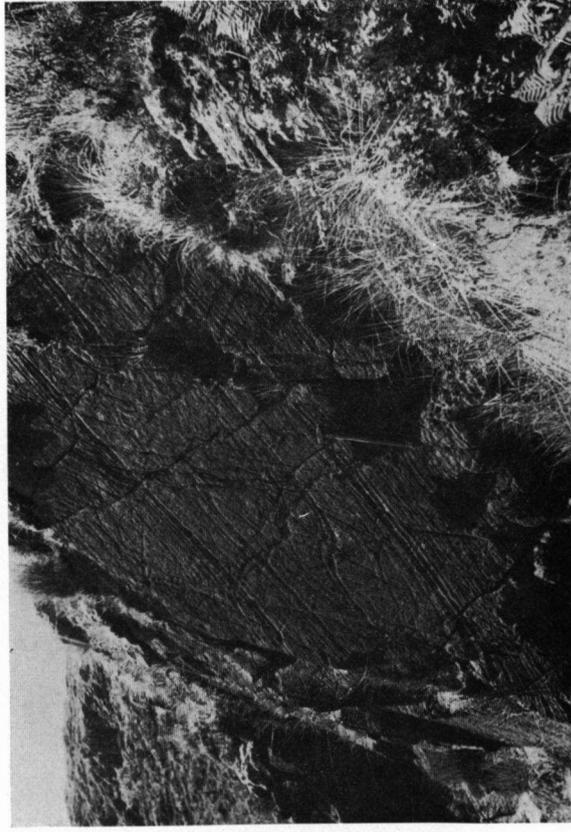
- a. Lherzolite fragments in a limestone breccia. Sample taken between the Etang de Lers and Port de Lers.
- b. Lherzolite, brecciated in a zone in which deformation was strongest. The S_1 - and S_2 -cleavages are clearly visible. Two sets of vertical cleavages oblique to S_3 are present. This type seems to be a tectonic breccia. (Etang de Lers)
- c. Layered lherzolite from the Etang de Lers. View to the south. The spinel pyroxenite layers are folded isoclinally. The vertical S_3 -cleavage is clearly visible.
- d. A fold of some spinel pyroxenite layers in the lherzolite of the Forêt de Freychinède. S_L = latering. S_0 = axial-plane cleavage. A, B, and C indicate the location of samples L-102-A, B, and C (see Fig. 25).



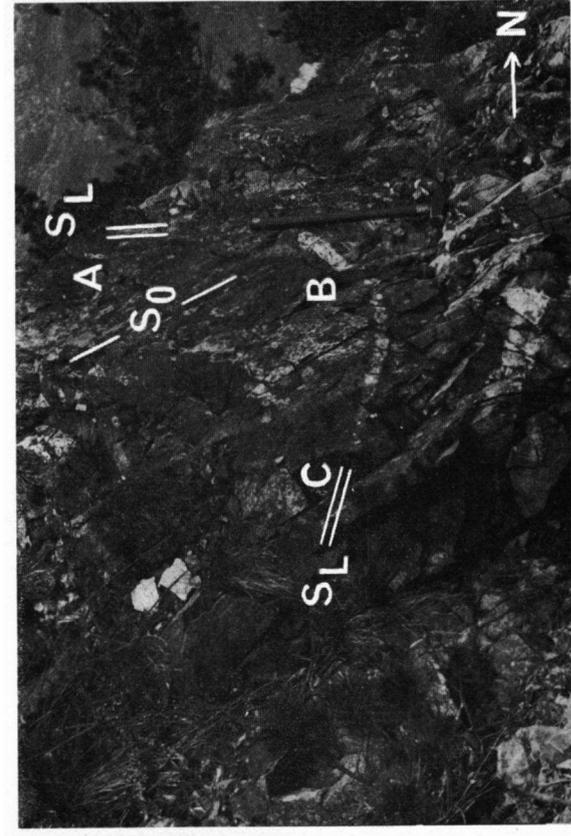
V a



V b



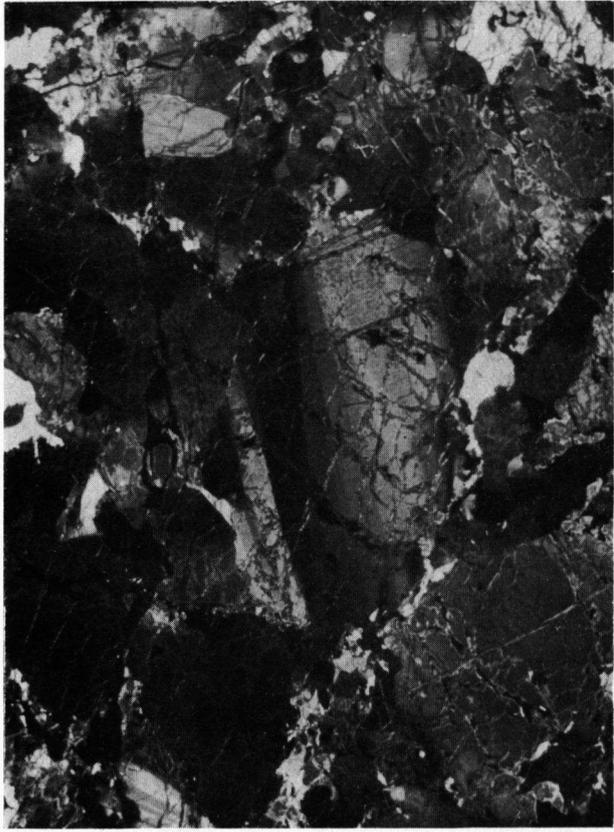
V c



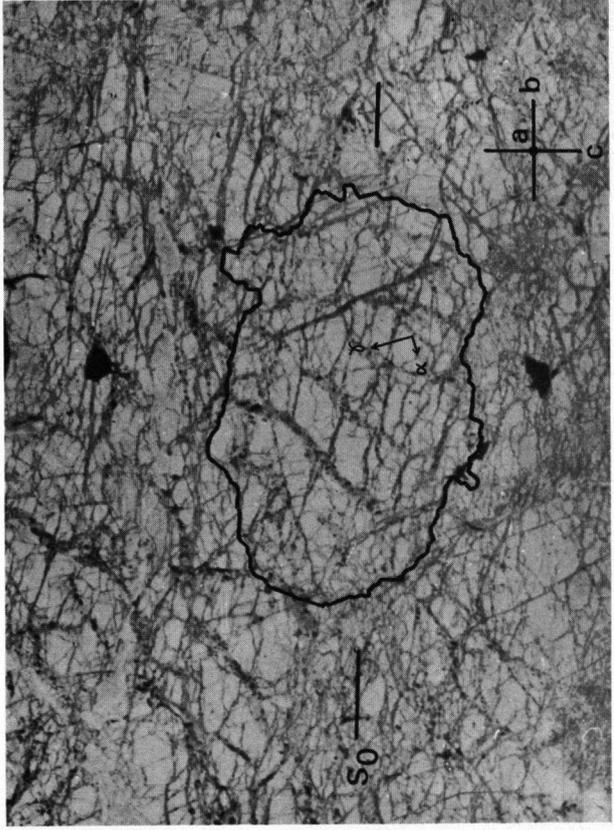
V d

PLATE VI

- a. Microphotograph of a hercynite from the Etang de Lers (Sample L-34, Fig. 33). Crossed nicols. The elongate grain in the centre has wedge-shaped kink bands. (14 ×)
- b. Same as VI, a, with ordinary light. A line has been drawn around the elongate olivine grain lying parallel to the pre-Alpine cleavage S_0 ; a , b , and c are the fabric a -, b -, and c -axes. The orientation of the optic elasticity axes (α and γ ; β is perpendicular to the photograph) is totally different from that in the other olivine grains, in which γ lies almost parallel to fabric b and α parallel to fabric c . (14 ×)
- c. Hercynite mylonite of the Etang de Lers. Ellipsoidal aggregates of spinel (dark) and pyroxenes are embedded in an aphanitic groundmass of olivine with a little enstatite. This thin section shows no olivine eyes. The serpentinized cracks are of Alpine age. (40 ×)
- d. Transition from hercynite mylonite (left) to normal coarse-grained hercynite (right). Between the two, a finely granulated zone is present. The granulation and mylonitization probably belong to one process. (100 ×)



VI a



VI b



VI c



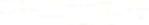
VI d



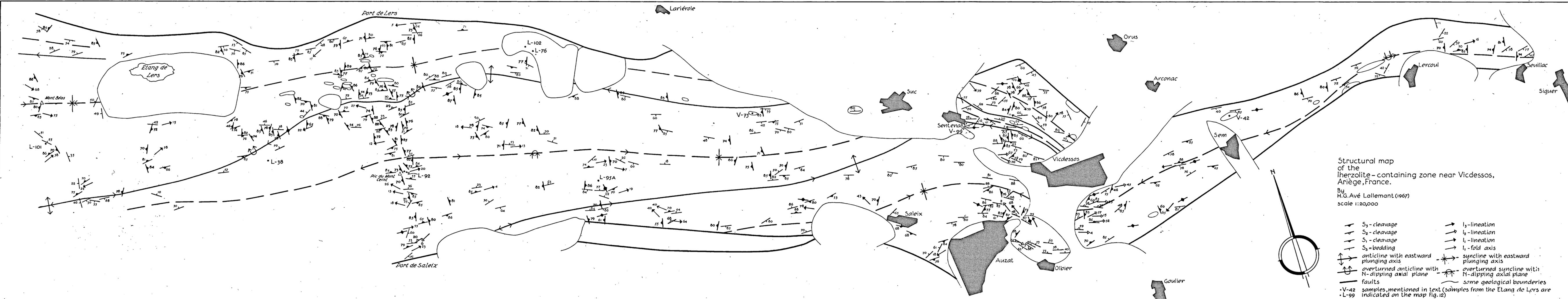
Geological map of the Iherzolite-containing zone near Vicdessos, Ariège, France.

By
H.G. Avé Lallemant (1967)

legend:

 glacial and recent deposits	 Iherzolites
 Albian marls	 ophites
 Middle Jurassic and Aptian dolomites and limestones	 fault breccia
 Middle and Upper Liassic marls	 fault
 Lower Liassic dolomites	 cross-section
 Paleozoic	

scale 1: 20,000

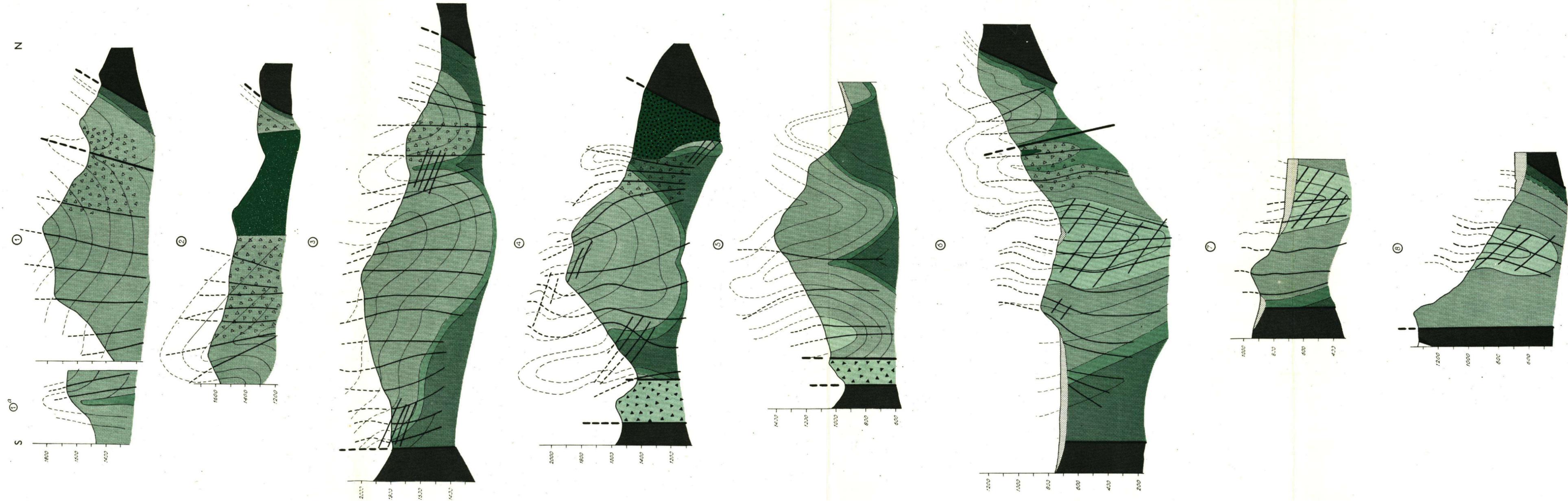


Structural map of the Iherzolite-containing zone near Vicdessos, Ariège, France.
 By H.G. Avé Lallemant (1967)
 scale 1:20,000

- | | |
|--|---|
| ↖ S ₃ - cleavage | ↗ I ₃ - lineation |
| ↘ S ₂ - cleavage | ↖ I ₂ - lineation |
| ↙ S ₁ - cleavage | ↗ I ₁ - lineation |
| — S ₀ = bedding | ↔ I ₁ - fold axis |
| ↕ anticline with eastward plunging axis | ↖* syncline with eastward plunging axis |
| ↗* overturned anticline with N-dipping axial plane | ↖* overturned syncline with N-dipping axial plane |
| — faults | — some geological boundaries |
- V-42 samples, mentioned in text (samples from the Elang de Lers are indicated on the map Fig. 12)
 • L-99

Cross-sections of the Iherzolite-containing zone near Vicdessos, Ariège, France.

By H.G. Avé Lallemant (1967)



for legend, see geological map.

- faults
- - - bedding planes
- - - (sub)vertical S₁-cleavage
- - - eastward dipping S₂-cleavage
- - - north
- ▲ explosion breccia

scale 1:20,000