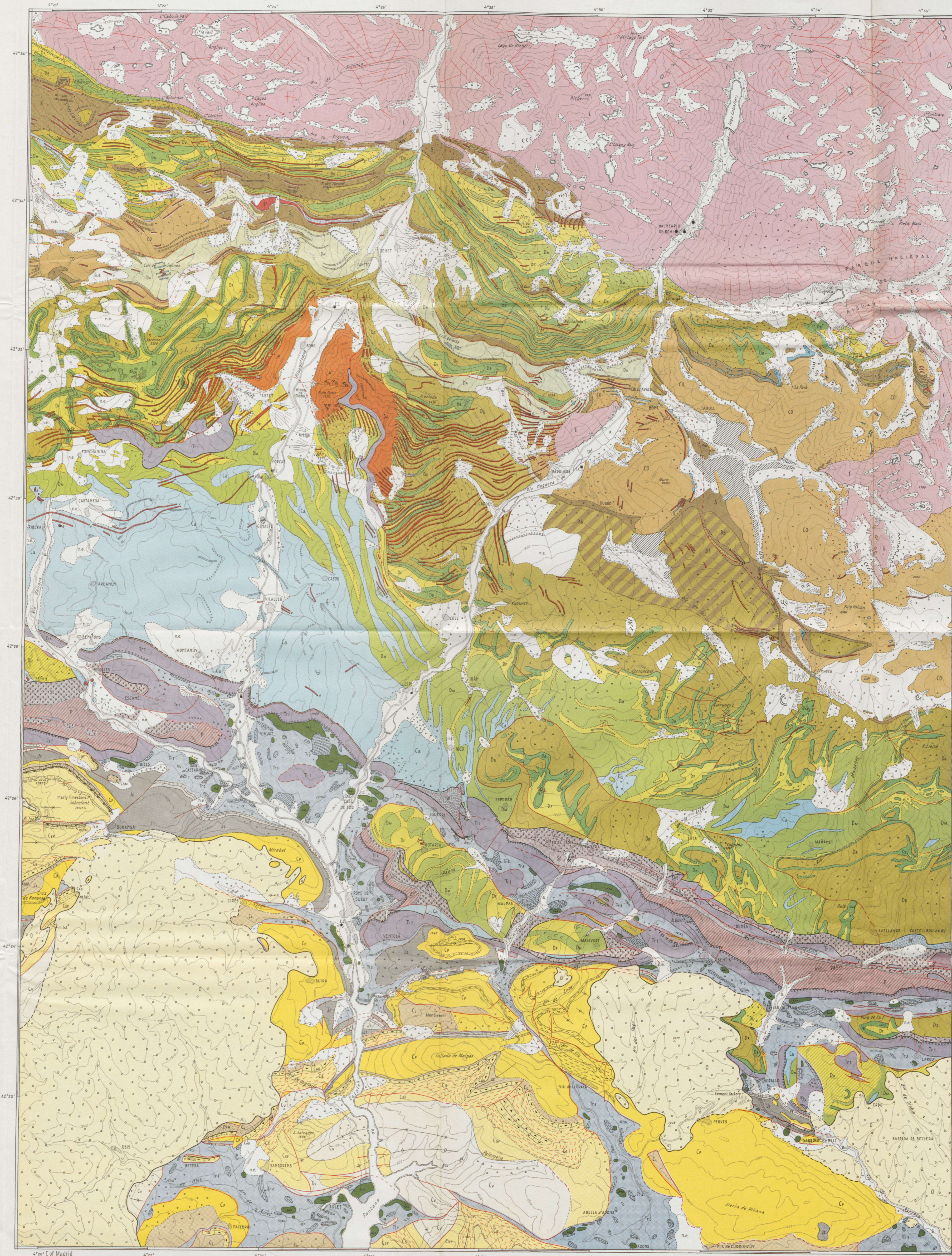
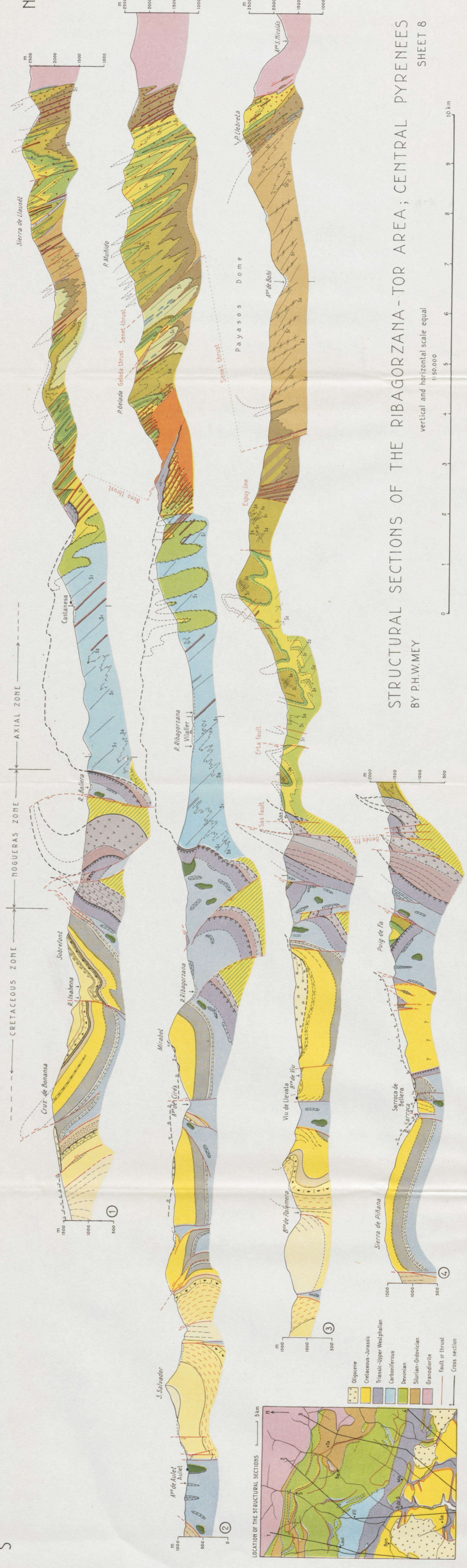


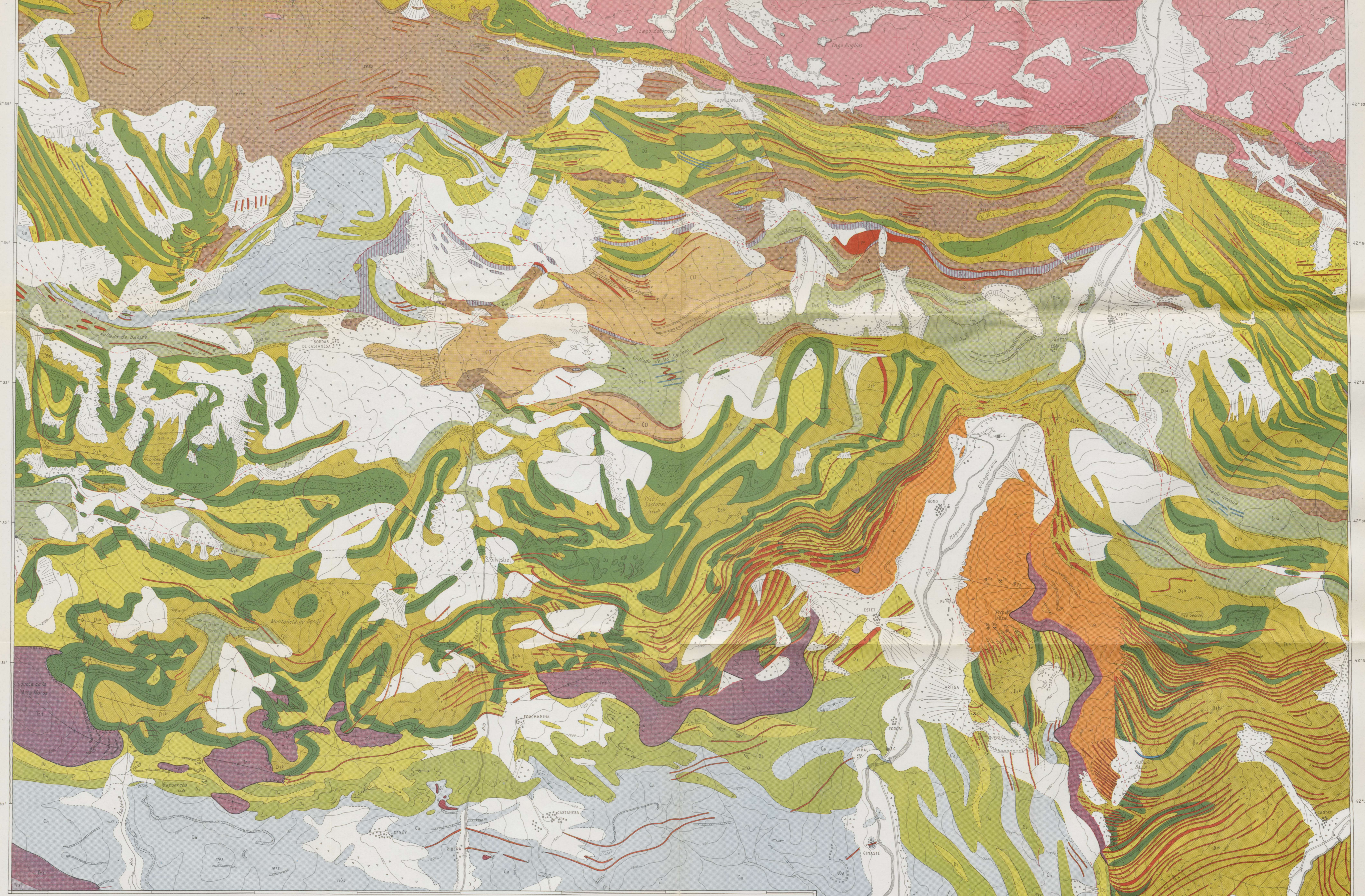
LEGEND:

- Alluvium (a) or no exposure (ne)
 - Snow field or glacier
 - Scree
 - Alluvial fan
 - Landslide
 - glacial deposit
 - Fluvio-glacial terrace
 - Steep incision in glacial or fluvio-glacial deposit
 - Rock glacier
- QUATERNARY**

TERTIARY	Oligocene Upper Oligocene	P 0 Collegats Conglomerates	coarse conglomerate
CRETACEOUS	Senonian	Cv Vallcarga formation	marl, calcarenite and sandy lst.
	Turonian	Csr Santa Fe Limestone	light-coloured, micritic lst. with slumps
	Conomanian	Cs Sopenra Marls	sandy marl and nodular argill. lst.
	Albian	Ca Aulet Orbitolina-lst.	sandy, Orbitolina-bearing lst.
		Ca San Martin formation	sandstone and conglomerate
		Cl Liusa Marls	marl and argillaceous limestone
	Urgo-Aptian	Ca Prada Limestone	dark, micritic lst. with marl horizon
JURASSIC	Malm, Dogger	Jz	dark-grey, massive dolomite
	Liassic	Jl Bonansa formation	very fossiliferous, bituminous marl platy, dolomitic limestone
TRIASSIC	Upper	Tr Pont de Suert formation	gypsum & dol. marl, with ophite bodies scapolitized dol. marl and mudstone
	Middle	Tr	micritic limestone and dolomite
	Lower	Tr Bunter	red silt-, sand- and mudst., conglomerates
PERMIAN ?		P Peranera formation	red mudstone, breccia and dol. marl
CARBONIFEROUS	Stephanian	St Malpas formation	grey & brown mud- & sandst., coal seams tuff and lava
	U. Westphalian	W Trill Castell Volcanics	coarse conglomerate
	Middle & Lower Carboniferous	W Aguiró formation	coarse conglomerate
		Ca	Mercurian folding phase micaceous shale, locally sandy
DEVONIAN	Upper	Dw Mañanet Grotte	badly exposed lst., argill. lst., shale
		Dr Fonchanna formation	nodular limestone and calc-schist
	Middle	Dm Basibé formation	slate with rare limestone beds
	Lower	Dd Gelada fm.	lst. a nod. lst. in the central and western part with quartzite & dol. intercalations
		Da Aneto fm.	quartzwacke, sandy sh. and argill. lst.
		Ds	slate with rare limestone beds in the Durro-triangle; non-div. lowermost Dev. (st. & slate) and Silurian black slate
SILURIAN		S	pyrite-bearing bl. sl. with thin-bed. lst. at the base
CAMBRO-ORDOVICIAN		Co	slate, sandy slate and thin quartzites thick quartzite impure limestone

- Late Carboniferous intrusives
- Biotite-granodiorite
- Quartz-diorite porphyrite dyke
- Quartz-diorite apite and granite porphyrite dyke
- Trachy-Andesite and Rhyo-Dacite
- Area influenced by thermal metamorphism
- Silicified hornfels and marble with diorite-porphyrtyc dykes
- Quartz dyke
- Volcanic rock (intrusive) in lower Carboniferous shale
- Normal contact
- Unconformable contact
- Transitional contact
- Fault, observed and inferred
- Alpine thrust in axial zone
- Macro joints in granodiorite area
- Syncline
- Anticline
- Mine
- Abandoned mine
- Limestone quarry
- Iron
- Copper
- Silver bearing Galena
- Thermal sulfurous source
- Hydroelectric Power station



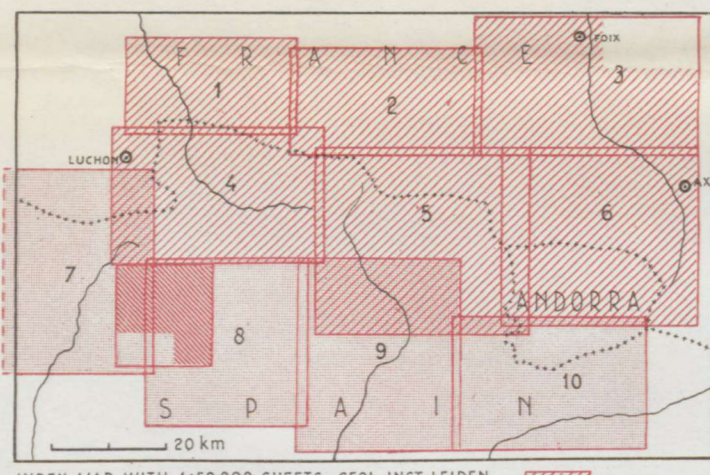


GEOLOGICAL MAP OF THE RIBAGORZANA AND BALIERA VALLEYS, CENTRAL PYRENEES

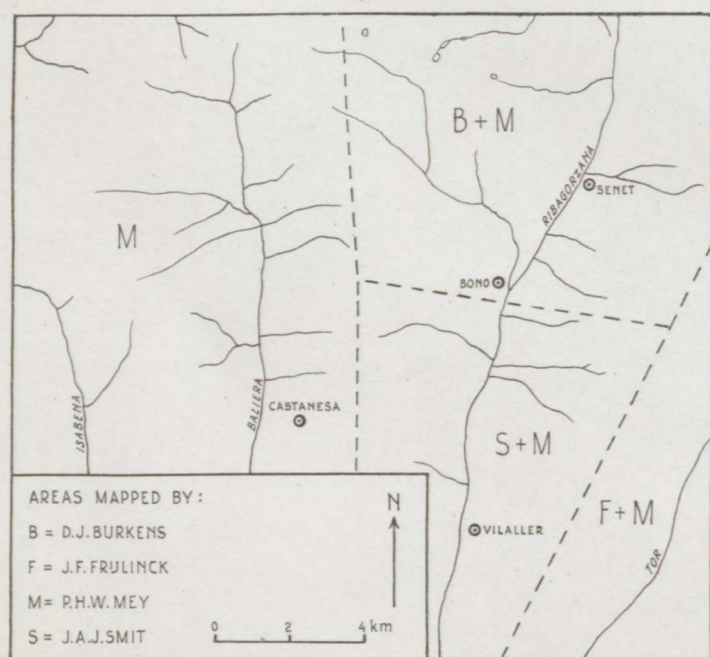
Published by the Geological Institute, Leiden University, 1965

Scale 1:25,000

Map and text prepared by P.H.W. Mey



INDEX MAP WITH 1:50,000 SHEETS GEOL. INST. LEIDEN



AREAS MAPPED BY:
B = D.J. BURKENS
F = J.F. FROELINK
M = P.H.W. MEY
S = J.A.J. SMIT

LEGEND:

	Alluvium		Biotite-granodiorite		Normal contact
	Scree		Diorite and diorite-porphryite dyke		Unconformable contact
	Alluvial fan		Aplite and quartz-porphryite dyke		Transitional contact
	Landslide		Area influenced by thermal metamorphism		Fault, observed and inferred
	Glacial deposits		Silicified hornfelses and marbles with diorite-porphryite dykes		Alpine thrust
	Steep incision in glacial deposits		Quartz dyke		Macro joint
	Gypsum and marl		Volcanic rock (intrusive) in Lower Carboniferous shale		Syncline
	Scapolitized Upper Triassic Keuper				Anticline
	Ophite				Mine
	Dolomite and limestone				Abandoned mine
	Conglomerate red mudstone, siltst. and sandst.				Iron
	Basal breccia				Copper
	Red mudstone, breccia and dolomitic marl				Silver bearing Galena
					Hydroelectric Powerstation

BALIERA FACIES AREA		SIERRA NEGRA FACIES AREA	
	Micaceous shale impure sandstone impure limestone		Micaceous shale
	Griotte and limestone		Griotte and limestone
	Slate with rare limestone beds		Slate
	Limestone, quartzite, dolomite		Limestone
	Sandy slate and marly limestone		Sandy slate and marly limestone
	Slate with rare limestone beds		
	Mañanet Griotte		Mañanet Griotte
	Foncharina Formation		Foncharina Formation
	Basibé Formation		Castanesa Formation
	Gelada Formation		
	Aneto Formation		
			Rueda Formation

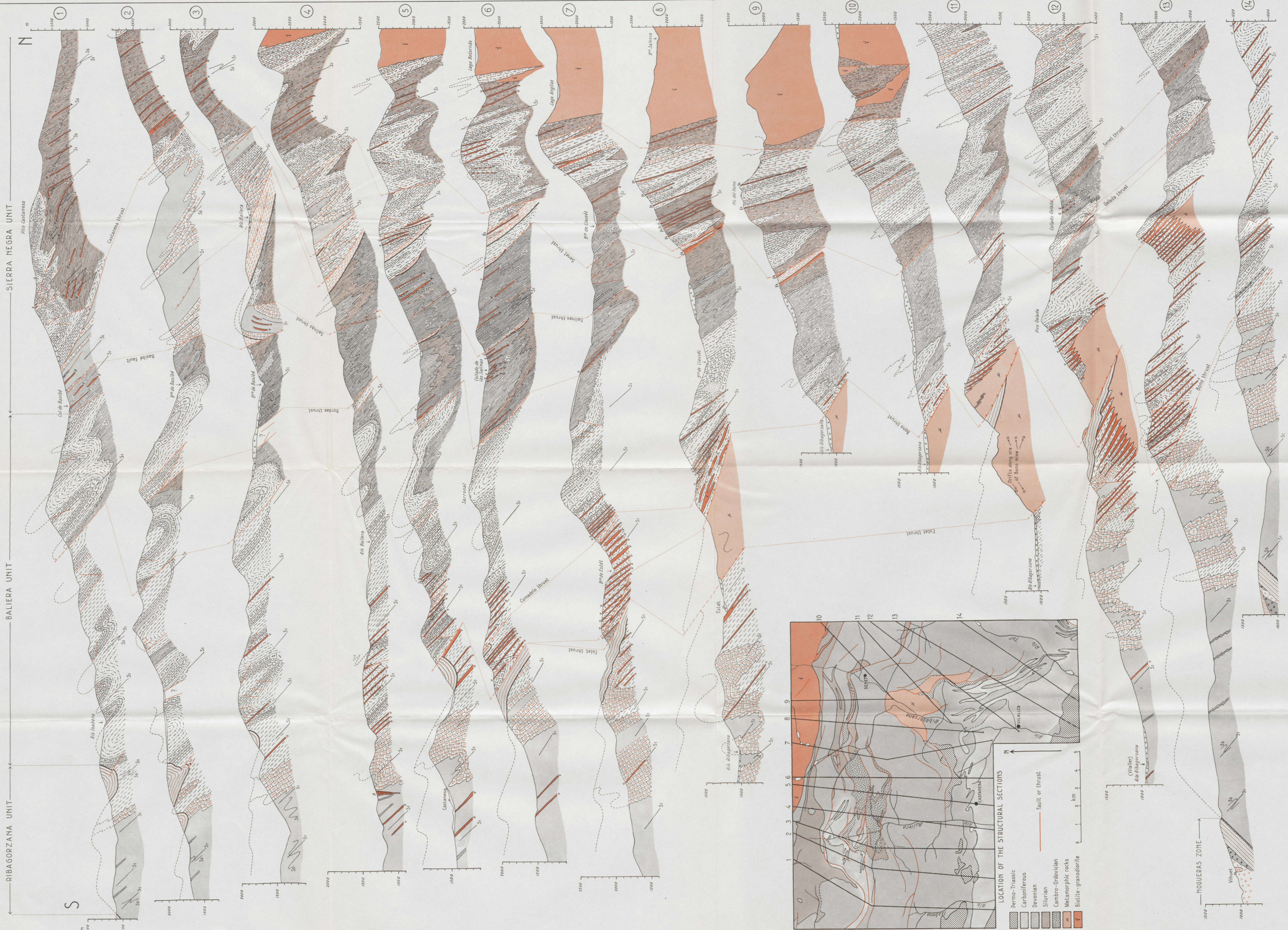
BALIERA FACIES AREA		SIERRA NEGRA FACIES AREA	
	Pyrite bearing slate with thin-bedded limestone at the top		
	Slate and sandy slate		
	Quartzite impure limestone		

"C.S.G. no. 1810, 23-12-65. Realizado de acuerdo con la Comisión Nacional de Geología"

STRUCTURAL SECTIONS OF THE RIBAGORZANA - BALIERA AREA, CENTRAL PYRENEES

by P.H.W. MEY, 1967

Scale 1:25,000



RIBAGORZANA UNIT		BALIERA UNIT		SIERRA NEGRA UNIT	
1	2	3	4	5	6
7	8	9	10	11	12
13	14				

CARBONIFEROUS		CARBONIFEROUS (mainly lower)		CARBONIFEROUS INTRUSIVES	
Micaceous shale Impure sandstone Impure limestone	Micaceous shale	Diolite-granodiorite	Diolite and diorite-porphyrite dyke	Diolite and diorite-porphyrite dyke	Diolite and diorite-porphyrite dyke
Nodular limestone and calc-schist	Nodular limestone and calc-schist	Apilite and quartz-porphyrite dyke	Apilite and quartz-porphyrite dyke	Apilite and quartz-porphyrite dyke	Apilite and quartz-porphyrite dyke
Slate with rare limestone beds	Slate with rare limestone beds	Area influenced by thermal metamorphism	Area influenced by thermal metamorphism	Area influenced by thermal metamorphism	Area influenced by thermal metamorphism
Slate with rare limestone beds	Slate with rare limestone beds	Silicified hornfels and marbles with diorite-porphyrite dykes	Silicified hornfels and marbles with diorite-porphyrite dykes	Silicified hornfels and marbles with diorite-porphyrite dykes	Silicified hornfels and marbles with diorite-porphyrite dykes
Sandy slate and marly limestone	Sandy slate and marly limestone	Quartz dyke	Quartz dyke	Quartz dyke	Quartz dyke
Slate with rare limestone beds	Slate with rare limestone beds	Volcanic rock (intrusive) in lower Carboniferous shale	Volcanic rock (intrusive) in lower Carboniferous shale	Volcanic rock (intrusive) in lower Carboniferous shale	Volcanic rock (intrusive) in lower Carboniferous shale

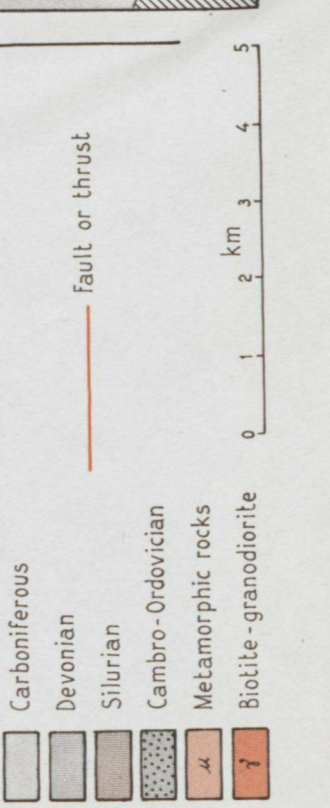
BALIERRA FACIES AREA		SIERRA NEGRA FACIES AREA	
Micaceous shale Impure sandstone Impure limestone	Micaceous shale	Micaceous shale	Micaceous shale
Nodular limestone and calc-schist	Nodular limestone and calc-schist	Nodular limestone and calc-schist	Nodular limestone and calc-schist
Slate with rare limestone beds	Slate with rare limestone beds	Slate with rare limestone beds	Slate with rare limestone beds
Slate with rare limestone beds	Slate with rare limestone beds	Slate with rare limestone beds	Slate with rare limestone beds
Sandy slate and marly limestone	Sandy slate and marly limestone	Sandy slate and marly limestone	Sandy slate and marly limestone
Slate with rare limestone beds	Slate with rare limestone beds	Slate with rare limestone beds	Slate with rare limestone beds

UPPER DEVONIAN		MIDDLE DEVONIAN		LOWER DEVONIAN	
Mallaret Grotte	Mallaret Grotte	Mallaret Grotte	Mallaret Grotte	Mallaret Grotte	Mallaret Grotte
Fonchannah Formation	Fonchannah Formation	Fonchannah Formation	Fonchannah Formation	Fonchannah Formation	Fonchannah Formation
Basal Formation	Basal Formation	Basal Formation	Basal Formation	Basal Formation	Basal Formation
Gelda Formation	Gelda Formation	Gelda Formation	Gelda Formation	Gelda Formation	Gelda Formation
Areta Formation	Areta Formation	Areta Formation	Areta Formation	Areta Formation	Areta Formation

SILURIAN		CAMBRO-ORDOVICIAN	
Pyrite bearing slate with thin-bedded limestone at the top	Pyrite bearing slate with thin-bedded limestone at the top	Pyrite bearing slate with thin-bedded limestone at the top	Pyrite bearing slate with thin-bedded limestone at the top
Slate and sandy shale	Slate and sandy shale	Slate and sandy shale	Slate and sandy shale
Quartzite	Quartzite	Quartzite	Quartzite
Impure limestone	Impure limestone	Impure limestone	Impure limestone

QUATERNARY		TRIASSIC		PERMIAN ?	
Alluvium	Alluvium	Gypsum and marls	Gypsum and marls	Red mudstone, breccia and dolomitic marl	Red mudstone, breccia and dolomitic marl
Scree	Scree	Sapropitized upper Triassic	Sapropitized upper Triassic		
Glacial deposits	Glacial deposits	Ophite	Ophite		
		Dolomite and limestone	Dolomite and limestone		
		Red mudstone, silt and st.-Buntsandst.	Red mudstone, silt and st.-Buntsandst.		

LOCATION OF THE STRUCTURAL SECTIONS



Scale 1:25,000

