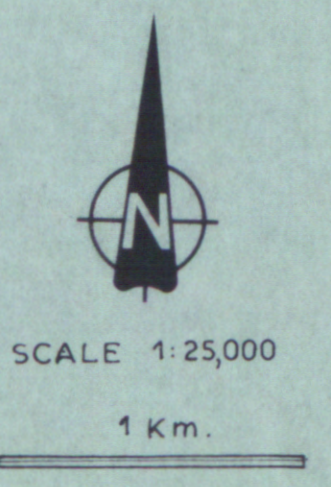




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MAP 1 : Geological map of the
St-Pol-de-Léon Metamorphic complex
and Morlaix Basin area.

MAP 1: GEOLOGICAL MAP OF THE ST. POL-DE-LÉON
METAMORPHIC COMPLEX AND THE MORLAIX BASIN AREA.



MAP 1: WESTERN AREA

- Hercynian Intrusions**
- Granite pegmatite
 - Tourmaline granite } Late granites
Leucogranite
 - Granite de Roscoff
 - Biotite and monzonite granites } Early granites
Hornblende granodiorite
 - Metabasic sheets
Acrid/Keratophyre sheets
- Morlaix Basin**
- Grès de Plouézach
 - Formation de Barnenez
 - Formation de Dourduff (inc. Ank. de Kerarmel + Poud. de Dourduff Mem.)
 - Formation de Morlaix (Schistes Zébrés)
 - Formation de Kerolzec
 - Blastomylonites - Carantec Shear Belt
 - Mixed Metasediments and Amphibolites of the Baie de Morlaix
- St. Pol-de-Léon Metamorphic Complex**
- Metaquartzite
 - Gneiss Granitique d'Ile Callot
 - Micaschistes de Penzé
 - Amphibolites de Pte. St. Jean
- St. Jean-du-Doigt Gabbro Complex**
- Lamprophyre sheets (post-complex)
 - Agmatite component
 - Pegmatite component
 - Gabbro component
- Petit Trégor**
- Brioverian metasediments
- S0 sub-parallel S1
 S2
 F2/F3 fold axis/plunge
 Fault
 Sh. zone
 Guiclan

Boundaries drawn (Maps 1 and 2) are based largely on field observations, representative structural information is given but not all exposures and readings are shown. For some of the inland outcrops information has been obtained from the BRGM 1:80,000 maps.

Nature of contact not known.

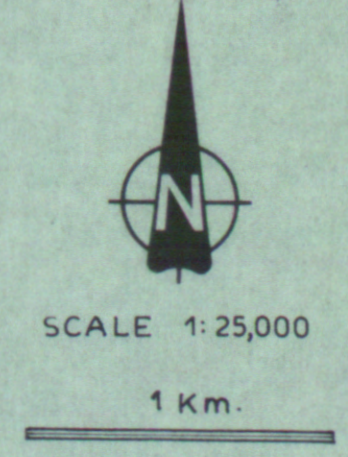
MAP 2 : Geological map of the
Petit Trégor aréa.

MAP 2 : GEOLOGICAL MAP OF THE PETIT TRÉGOR AREA



- Hercynian intrusions**
- Leucogranite (eg Beg an Fry, Trédrez) Late granite
 - Foliated granite (eg N. Bois de la Roche) Early granite
 - Dolerite (age unknown)
- Palaeozoic metasediments**
- Quartzites de Grand Rocher
 - Schistes à chistolite de St Michel-en-Grève
 - Migmatites de Tréduder
- St Jean-du-Doigt Gabbro Complex**
- Agmatite component
 - Pegmatite component
 - Gabbro component
- Moulin de la Rive Orthogneiss Complex**
- Orthogneiss (non-separated components inland)
 - Granite component
 - Intermediate-basic components
 - Augen gneiss
 - Granodiorite de Beg ar Forn

- Locquirec Shear Belt**
- Mylonites/protomylonite
 - Transition zone feldspathic mylonites
 - Striped amphibolite
 - Poudingue
- Brioverian**
- Metasediments } Formation de Plestin
 - Greenstone } Formation de Pte. de l'Armorique
 - Greenstone-schist } Formation de Pte. de l'Armorique
 - Metasediments }
- Intrusive sheets**
- Acid/keratophyre
 - Metabasic



S0 sub-parallel to S1 S2 F2 fold axis/plunge Fault Shear zone

Nature of Brioverian / Palaeozoic contact not known. See key Map 1 for this area.

MAP 3 : Geological map of the
Pte de lArmorique area.

Grande
Rocher

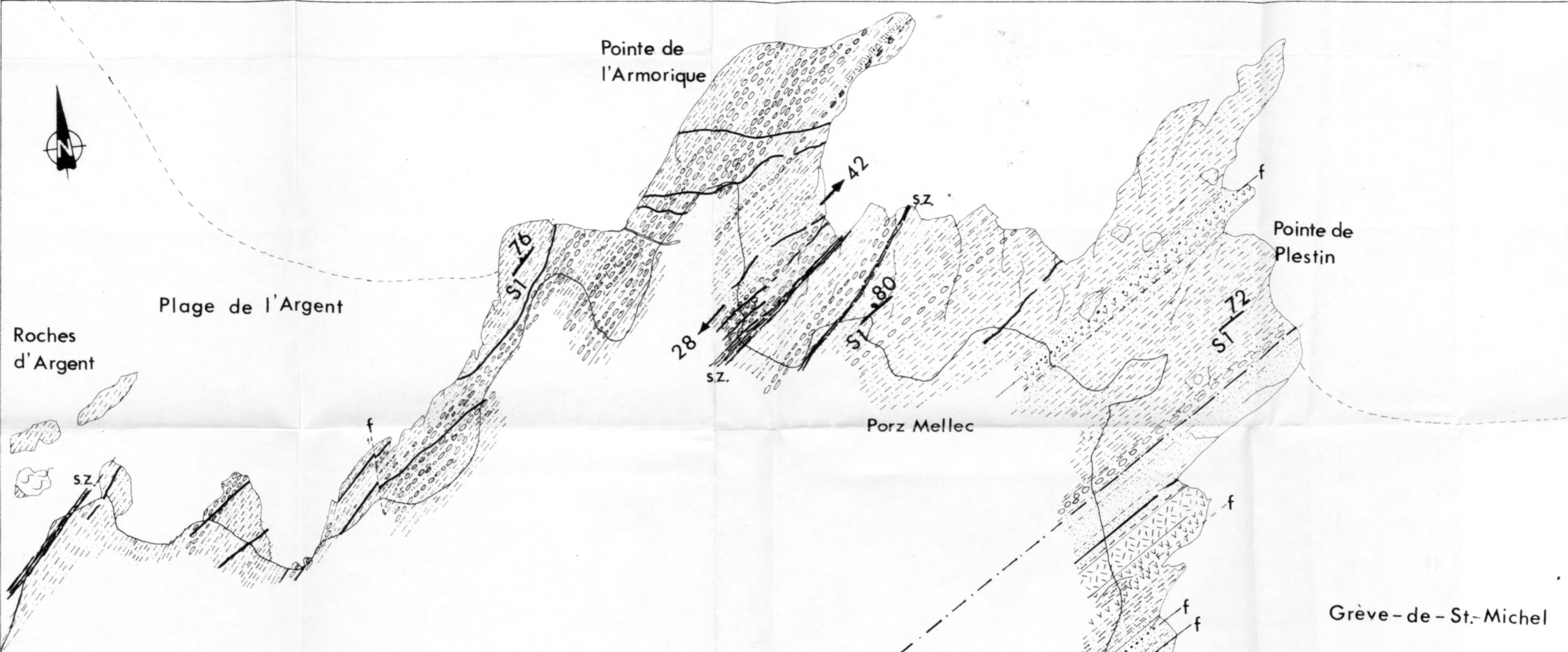


Grande - 96 - 2



GEOLOGICAL MAP OF THE POINTE DE L'ARMORIQUE AREA

Scale 0 ms 200



KEY	
	Quartz veins assoc. with faults
	Basic dyke
	Basic intrusion
	Acid dyke
	Granodioritic gneiss
FORMATION DE PLESTIN	
	Psammites
	Pelites
	Acid volcanoclastic sediments
FORMATION DE PTE. DE L'ARMORIQUE	
	Medium grained greenstone
	Fine grained greenstone
	Pillow lavas
	Sedimentary bands
	Hyaloclastite breccia
	Greenschists; segregation banding in shear zones.
	Formation Boundary
f. -	Fault
s.z. -	Shear zone

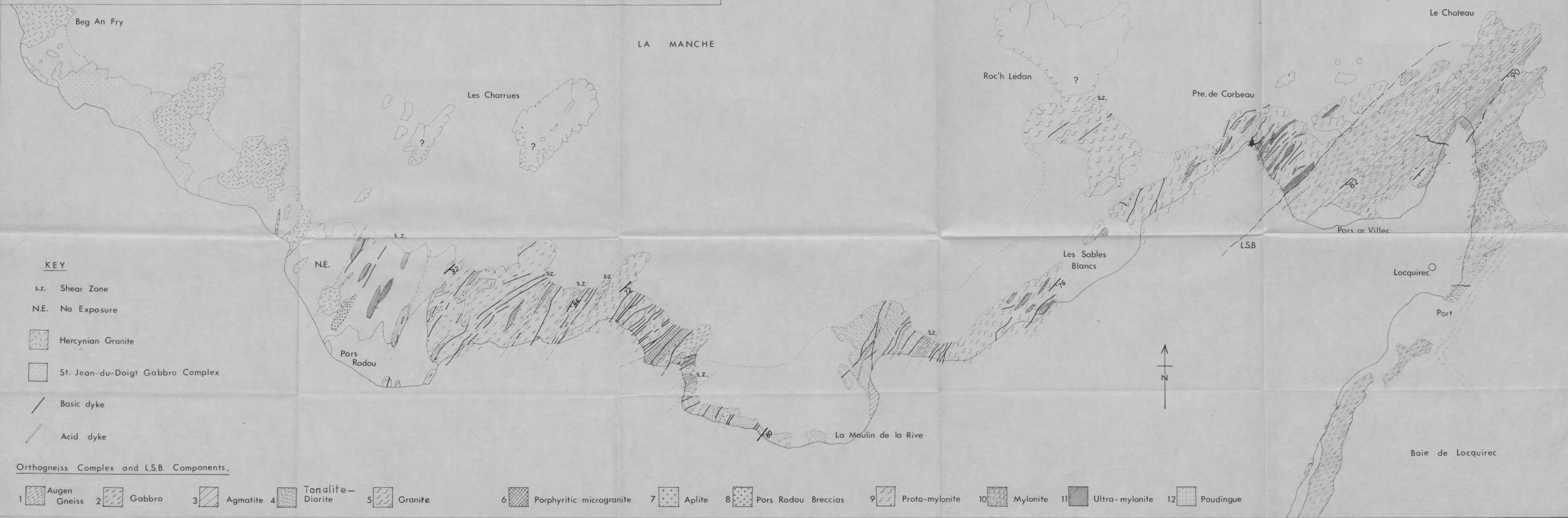


Rocher Rouge

MAP 4 : Geological map of the
Moulin de la Rive Orthogneiss
Complex and Locquirec Shear Belt.

GEOLOGICAL MAP OF THE MOULIN DE LA RIVE ORTHOGNEISS COMPLEX AND THE LOCQUIREC SHEAR BELT.

0 ms 200



KEY

- s.z. Shear Zone
- N.E. No Exposure
- [Pattern] Hercynian Granite
- [Pattern] St. Jean-du-Doigt Gabbro Complex
- [Symbol] Basic dyke
- [Symbol] Acid dyke

Orthogneiss Complex and L.S.B. Components.

- | | | | | | | | | | | | |
|--------------------------|--------------------|----------------------|------------------------------|---------------------|--------------------------------------|--------------------|---------------------------------|----------------------------|-----------------------|-----------------------------|------------------------|
| 1 [Pattern] Augen Gneiss | 2 [Pattern] Gabbro | 3 [Pattern] Agmatite | 4 [Pattern] Tonalite-Diorite | 5 [Pattern] Granite | 6 [Pattern] Porphyritic microgranite | 7 [Pattern] Aplite | 8 [Pattern] Pors Rodou Breccias | 9 [Pattern] Proto-mylonite | 10 [Pattern] Mylonite | 11 [Pattern] Ultra-mylonite | 12 [Pattern] Poudingue |
|--------------------------|--------------------|----------------------|------------------------------|---------------------|--------------------------------------|--------------------|---------------------------------|----------------------------|-----------------------|-----------------------------|------------------------|

APPROXIMATE TIME INTERVAL

HERCYNIAN
380-345 m.y. peak M at c 350 m.y. c 293 - 315 m.y.

CADOMIAN

REGIONAL D/M EPISODE

D4

D3

D2

D1

St. POL-DE-LÉON METAMORPHIC COMPLEX		MORLAIX	BASIN	PETIT TRÉGOR		TRÉGOR		
Amphibolites de Pte St-Jean + Micashistes de Penzé	Gneiss granitique d'Île Callot	Carantec Shear Belt (CSB)	Morlaix Basin	St-Jean-du-Doigt Gabbro Complex	Moulin de la Rive Orthogneiss Complex	Locquirec Shear Belt (LSB)	Brioverian Fmn. de Pte de l'Armorique + Fmn. de Plestin	Palaeozoic Quartzites de Grand Rocher
				Lamprophyre Dykes				
Open warp folds and chevron folds	Kink bands ?	Kink bands	Late spaced cleavage (D3)			Kink bands	Kink bands + spaced cleavage	
Tourmaline granite and other "late" granites	Granite de Primel-Carantec (rotation of gneiss)	Granite de Primel-Carantec	Granites de Primel-Carantec, St-Fiacre.	Granites de Kerprigent, Beg an Fry + agmatites.		Granite de Trédrez and associated contact metamorphism		Granite de Ploumanac'h
Some metamorphic retrogression, muscovite growth	Kink bands some retrogression (clouding of feldspar, etc.)	Biotite growth (post-fold phase)	Greenschist Met. some late muscovite growth + qtz. recrystallization					
Upright folds (dom. in metasediments and crenulation cleavage (D3)		Upright folds	Upright folds and crenulation/press. soln.S2 (D2)			Upright folds in striped amphibolites S2 developed (D2)	Upright folds + crenulation cleavage (D3)	Upright folds (D2)
Emplacement of "early" foliated granites, eg. Granite de Roscoff		-		Emplacement of "early" foliated granites, eg. Granite de Plouaret and Granite de Rumbou				Granite de Plouaret
Peak M2 (post-D2) Upper amphibolite facies, incr. to NW	Gneissose banding and linear fabric. Amphibolization of dykes	Development of mylonitic segregation banding (Vertical movements)	Garnet growth, isoclinal folds, foliation and segregation banding of seds + volcs (D1)					
Isoclinal folds (D2)								
Not seen	Basic dykes	Basic dykes	Formation de Barnérez and dyke suite	not seen	Basic dykes	Basic dykes	Basic dykes	Not seen
			Formation de Dourduff					
Possible deposition of Palaeozoic quartzites.			Fmn. de Morlaix		Gneissose banding S1a + shear zones with S1b + S1c	Mylonite formation S1a, S1b + S1c	Isoclinal folds ? Shearing in part. (earlier structures destroyed) (D2)	Isoclinal folds (D1) Deposition of seds. (Arenig ?)
			Fmn. de Kerolzec		(D1)			Series rouge de Plourivo-Bréhat
	Emplacement of Granitoid complex			Emplacement of gabbro complex ?	Emplacement of multicomponent igneous complex		Granodiorite de Beg Ar Forn	Perros-Guirec Granitoid Complex
Segregation banding (D1)							Folding and met. (D1)	Folding, greenschist metamorphism
Brioverian basic volcanics and sediments			Brioverian basic volcanics and sediments (east)				Fmn. de Plestin Fmn. de Pte de l'Armorique	
(W)					Augen Gneiss			Port-Beni Gneiss (E)

(D1) Etc denotes local D/M episode.

TABLE 8 : 1 CORRELATION OF GEOLOGICAL EVENTS