

CLASSIFICATION OF SEDIMENTARY ROCKS

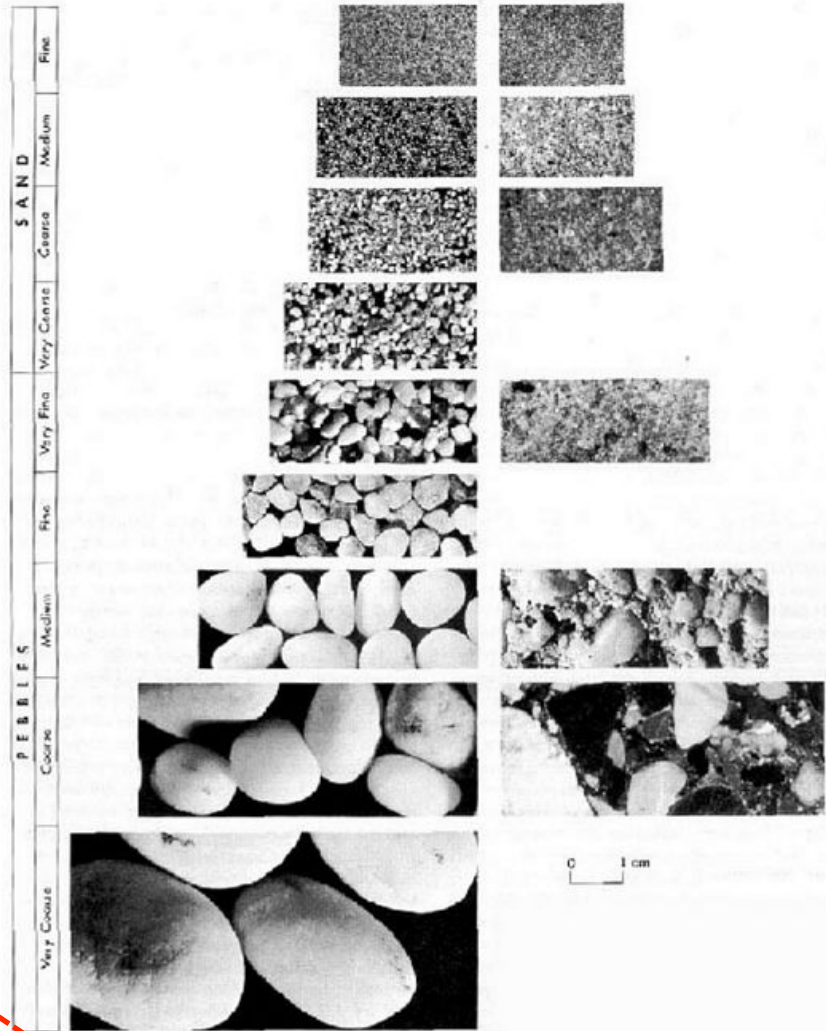
English

SEDIMENTS	ROCK
gravel, sand, silt, clay	conglomerates, breccias, sandstones, siltstones, claystones, mudrocks
biochemical and biogenic (sediments: carbonates and dolomites, siliceous, phosphates), organic sediments	limestones and dolomites, cherts, phosphate deposits, coal, oil shale, petroleum
evaporite deposits, sedimentary iron deposits	evaporites, ironstones

From: Tucker Maurice E. (2001),
“Sedimentary Petrology”,
Blackwell Sci. Publ. 251 pp.

Table 2.3 Grain-size scale for sediments and sedimentary rocks.
After Udden and Wentworth, and Blair & McPherson (1999)

Length (mm)		Class	Sediment/ rock name	
	ϕ	block	mega-conglomerate	
4096	-12	boulder	gravel conglomerate	
2048	-11			vc
1024	-10			c
512	-9			m
256	-8	f	cobble	
128	-7	c		
64	-6	f	pebble	
32	-5	vc		
16	-4	c		
8	-3	m		
4	-2	f	granule	
2	-1			
1	0	vc	sand sandstone	
0.50	1	c		
0.25	2	m		
0.125	3	f		
0.063	4	vf	silt siltstone	
0.031	5	c		
0.015	6	m		
0.008	7	f		
0.004	8	vf	clay claystone	



(English version)

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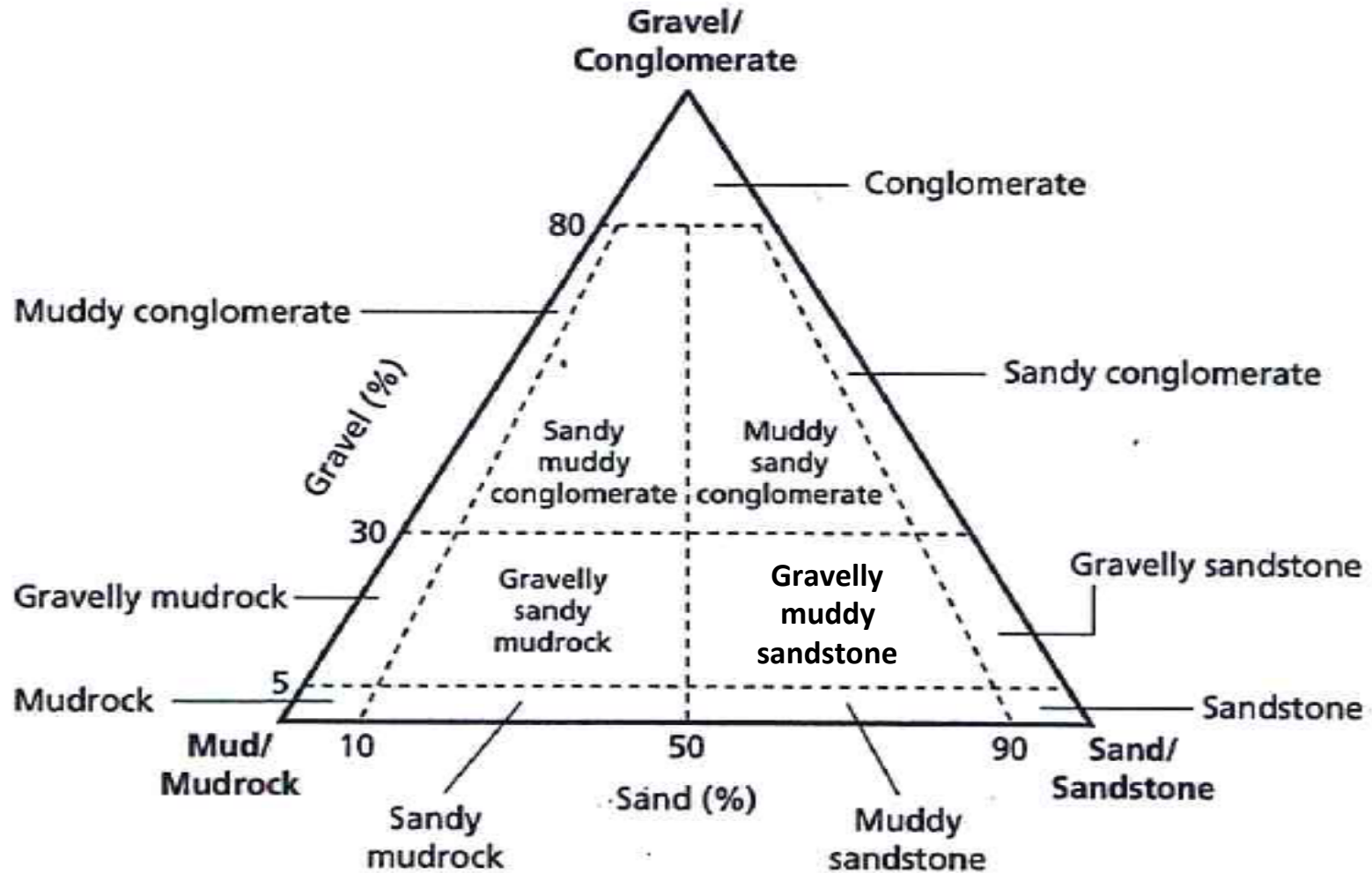


Fig. 2.1 Scheme for classifying sand-gravel-mud mixtures and the terms for sedimentary rock (after Udden-Wentworth and Blair & McPherson, 1999).

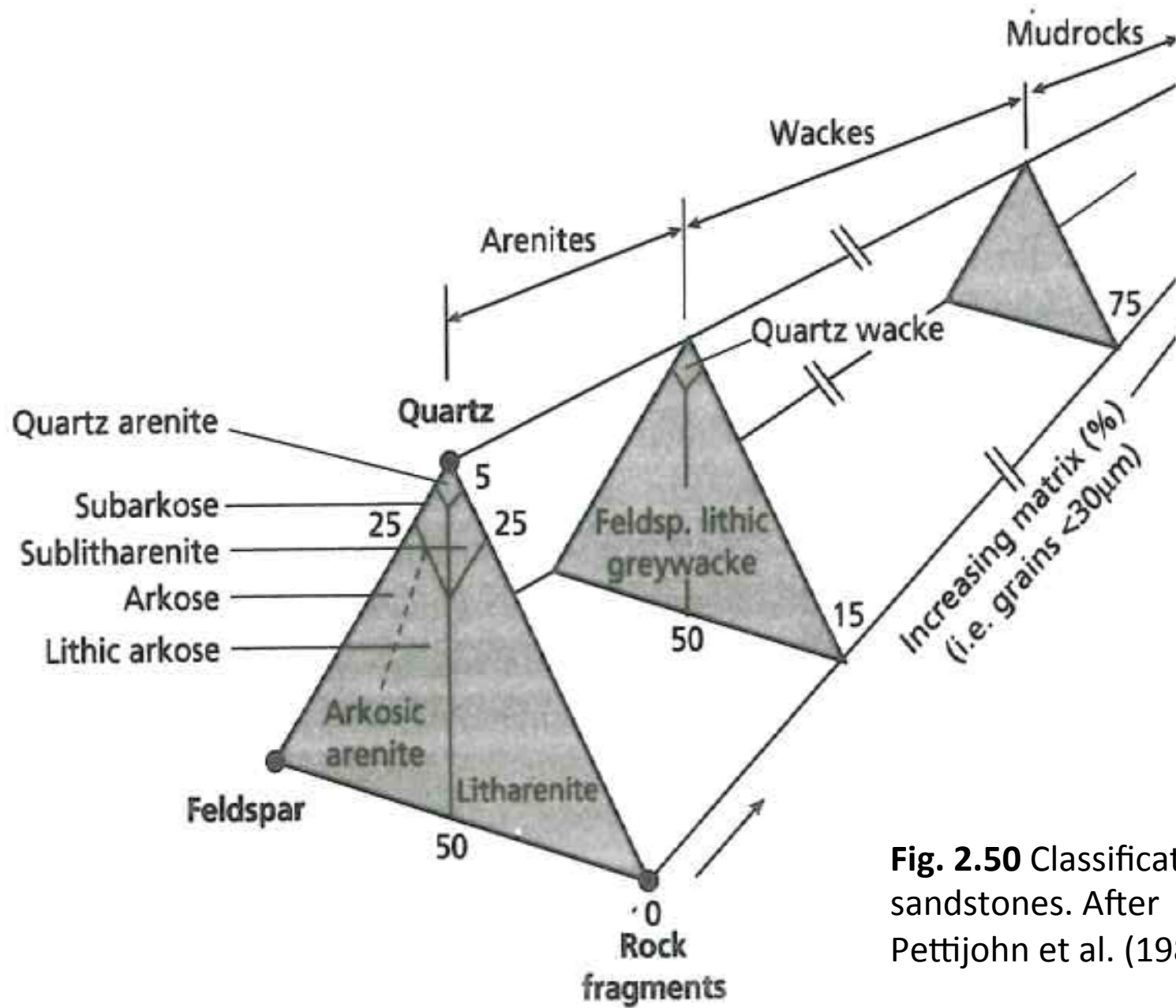



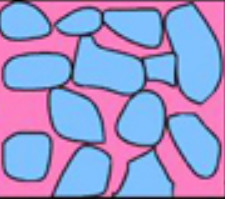





Fig. 2.50 Classification of sandstones. After Pettijohn et al. (1987).

Classification of carbonate rocks based on depositional texture (Dunham, 1962).

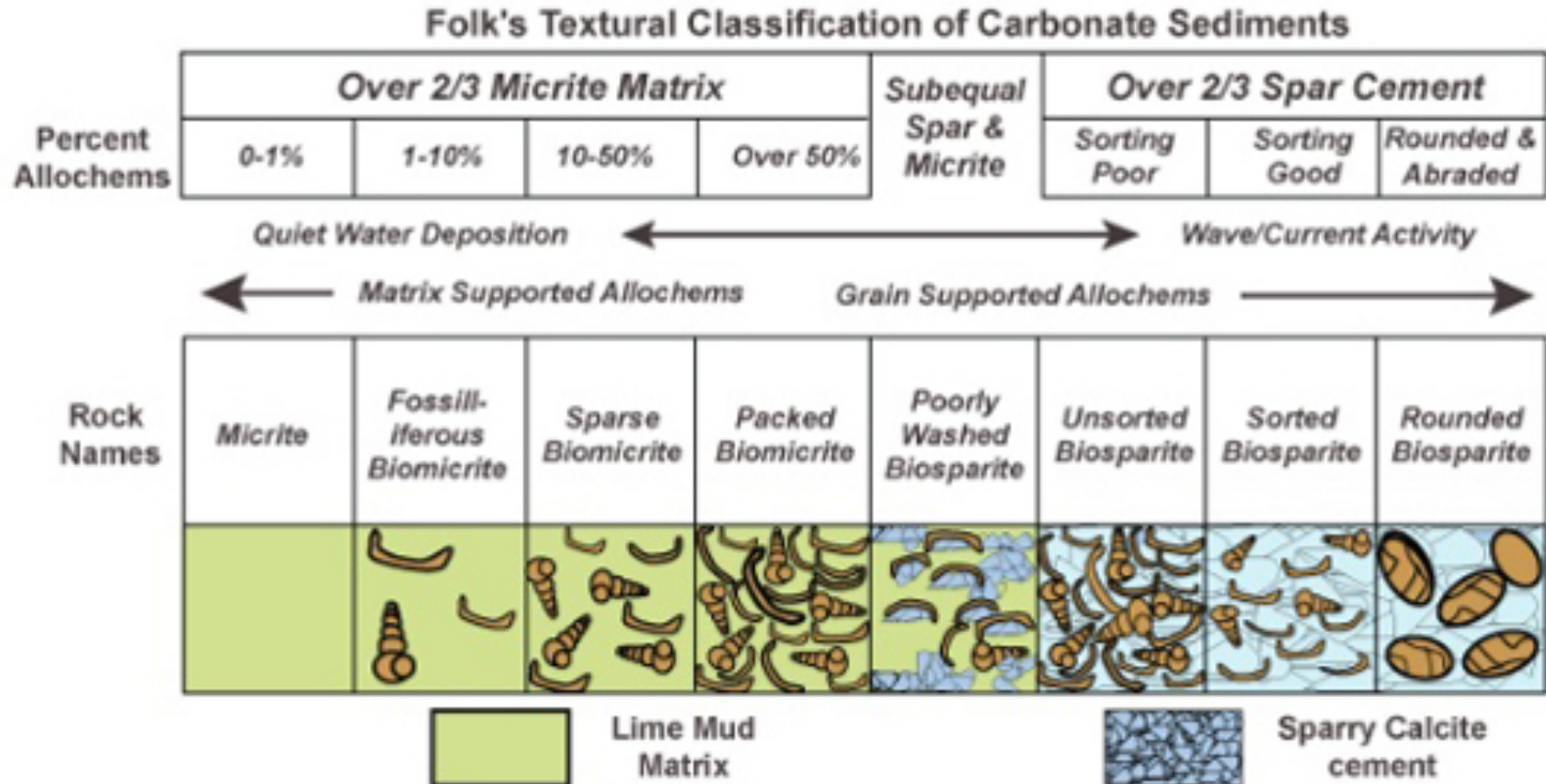
DUNHAM CARBONATE ROCK CLASSIFICATION

Depositional Texture Recognizable					Depositional Texture Not Recognizable	
Components Not Bound Together During Deposition				Original Components Bound Together During Deposition		Crystalline Carbonate
Contains Mud (clay and silt size particles)		Lacks Mud, Grain-Supported				
Mud Supported		Grain Supported				
<10 % Grains	>10 % Grains					
Mudstone	Wackestone	Packstone	Grainstone	Boundstone		
						

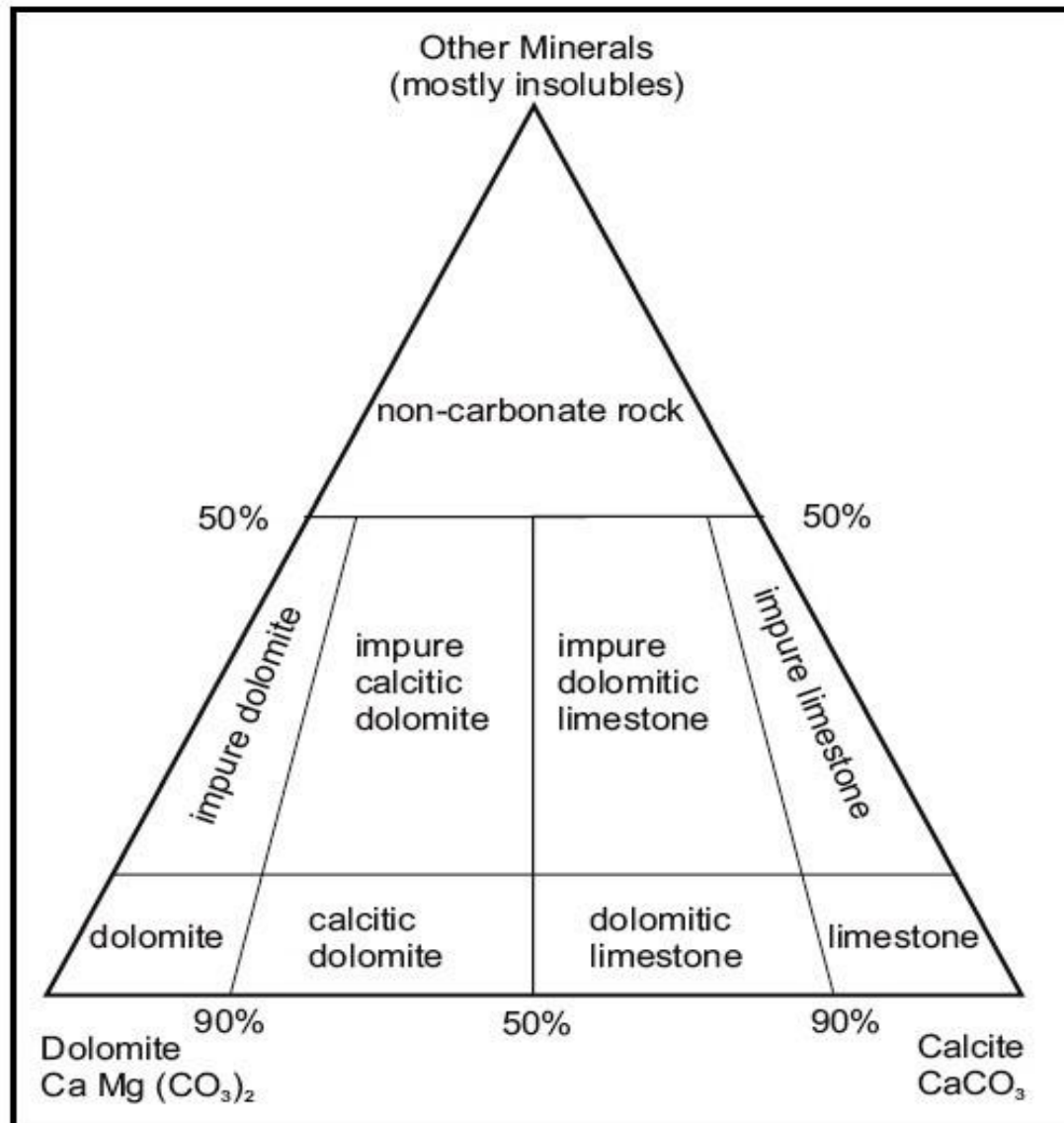
From: <http://www.alexstrekeisen.it/sedi/carbonatiche.php>

Classification of carbonate rocks based on composition (Folk, 1962).

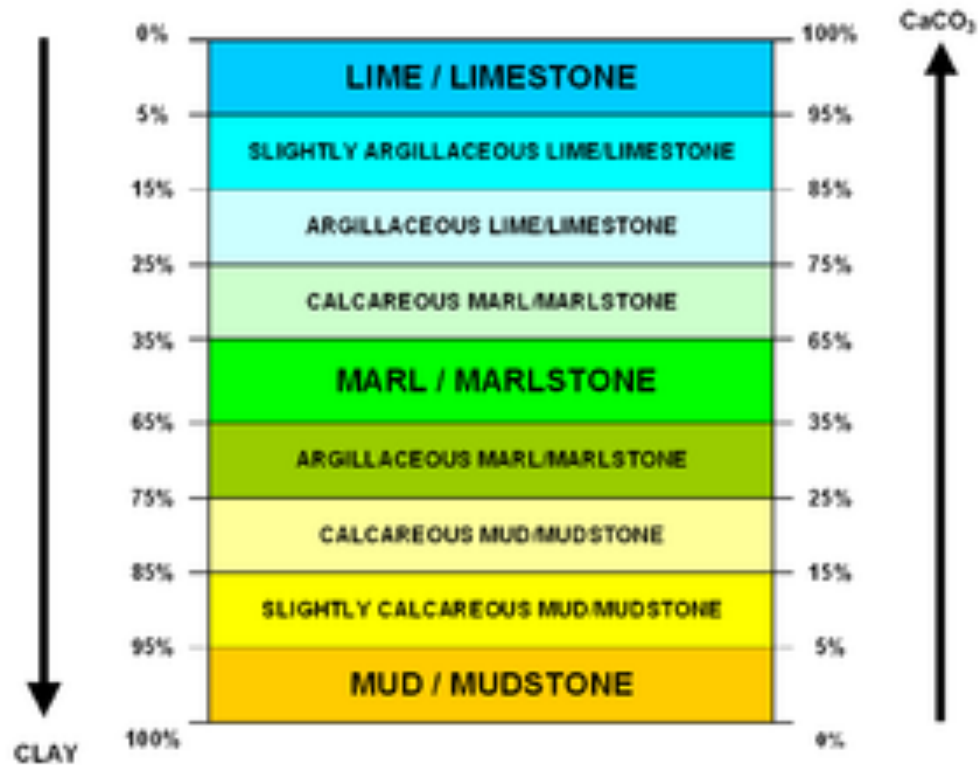
Folk Classification



From: <http://www.alexstrekeisen.it/sedi/carbonatiche.php>



Mineralogical classification of carbonate rocks. After Carr et al. (1994).



Scheme of the transitional lithotypes from mud (or mudstone) to lime (or limestone), illustrating the definition of marl (marlstone) as a mix of calcium carbonate and clay (from: wikipedia).



5%

10%

15%

20%



25%

30%



40%

50%



60%



70%



80%



90%

“Percentage estimation
comparison charts”

CLASSIFICAZIONE ROCCE SEDIMENTARIE

Italiano

SEDIMENTI	ROCCIA
ghiaie, sabbie, silt, argille	conglomerati, brecce, arenarie, peliti
biochimici e biogenici (sedimenti: carbonatici, silicei, fosfati), particelle organiche	calcari, selci, rocce fosfatiche, carbone, gas naturale, petrolio
sedimenti evaporitici, sedimenti con ossidi di ferro	evaporiti, formazioni ferrifere

Da: Tucker Maurice E. (2001),
"Sedimentary Petrology",
Blackwell Sci. Publ. 251 pp.

TABELLA 4.5 – Classificazione granulometrica di sedimenti (S) e rocce sedimentarie (R) secondo Udden - Wentworth (la scala ϕ indica i limiti tra le classi granulometriche ed è espressa in unità corrispondenti a - \log_2 mm).

R	S	Classi granulometriche	Millimetri	Micron	Scala ϕ		
Ruditi	Ghiaia	Blocchi	4096		- 12		
			256		- 8		
		Ciottoli					
		Ciottoletti	64			- 6	
		Granuli	4.00				- 2
			3.36				- 1.75
			2.83				- 1.50
			2.38				- 1.25
			2.00		2000		- 1
			1.68				- 0.75
Areniti	Sabbia	Sabbia molto grossa	1.41			- 0.50	
			2.19			- 0.25	
			1.00		1000	0	
		Sabbia grossa	0.84			0.25	
			0.71			0.50	
			0.59			0.75	
			0.50		500	1	
			0.42		420	1.25	
			0.35		350	1.50	
		Sabbia media	0.30		300	1.75	
			0.25		250	2	
			0.210		210	2.25	
			0.177		177	2.50	
		Sabbia fine	0.149		149	2.75	
			0.125		125	3	
			0.105		105	3.25	
			0.088		88	3.50	
		Sabbia molto fine	0.074		74	3.75	
0.0625			62.5	4			
0.053			53	4.25			
0.044			44	4.50			
0.037			37	4.75			
0.031			31	5			
Lutiti	Fango	Silt (limo)	Silt grosso	0.044	44	4.50	
				0.037	37	4.75	
			Silt medio	0.031	31	5	
				0.0156	15.6	6	
		Silt fine	0.0078	7.8	7		
			0.0039	3.9	8		
		Argilla	0.0020	2	9		
			0.00098	0.98	10		
			0.00049	0.49	11		
			0.00024	0.24	12		

(Italian version)

Da:
D'Argenio et al., 1994.
Introduzione allo studio
delle rocce. UTET,
157 pp.

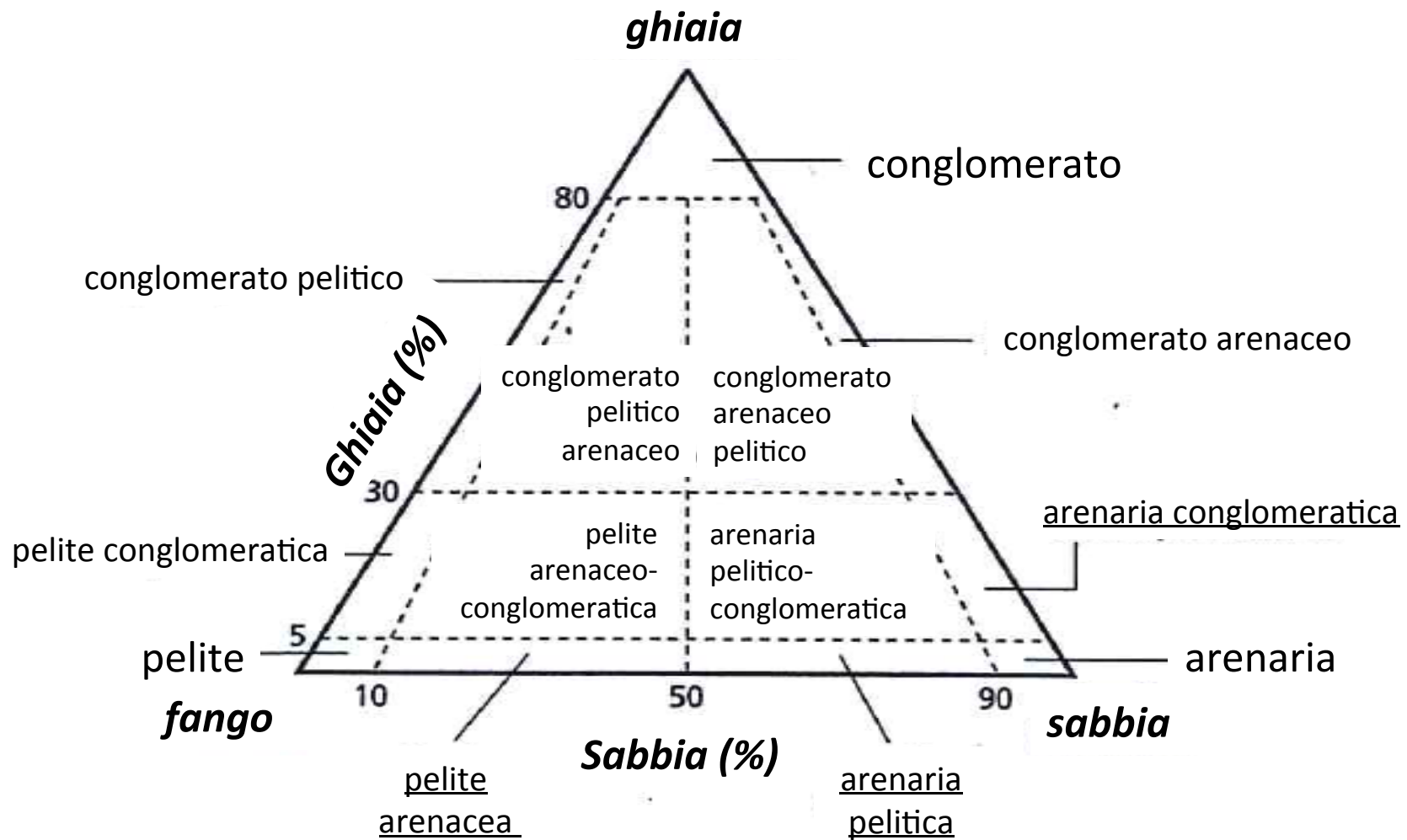
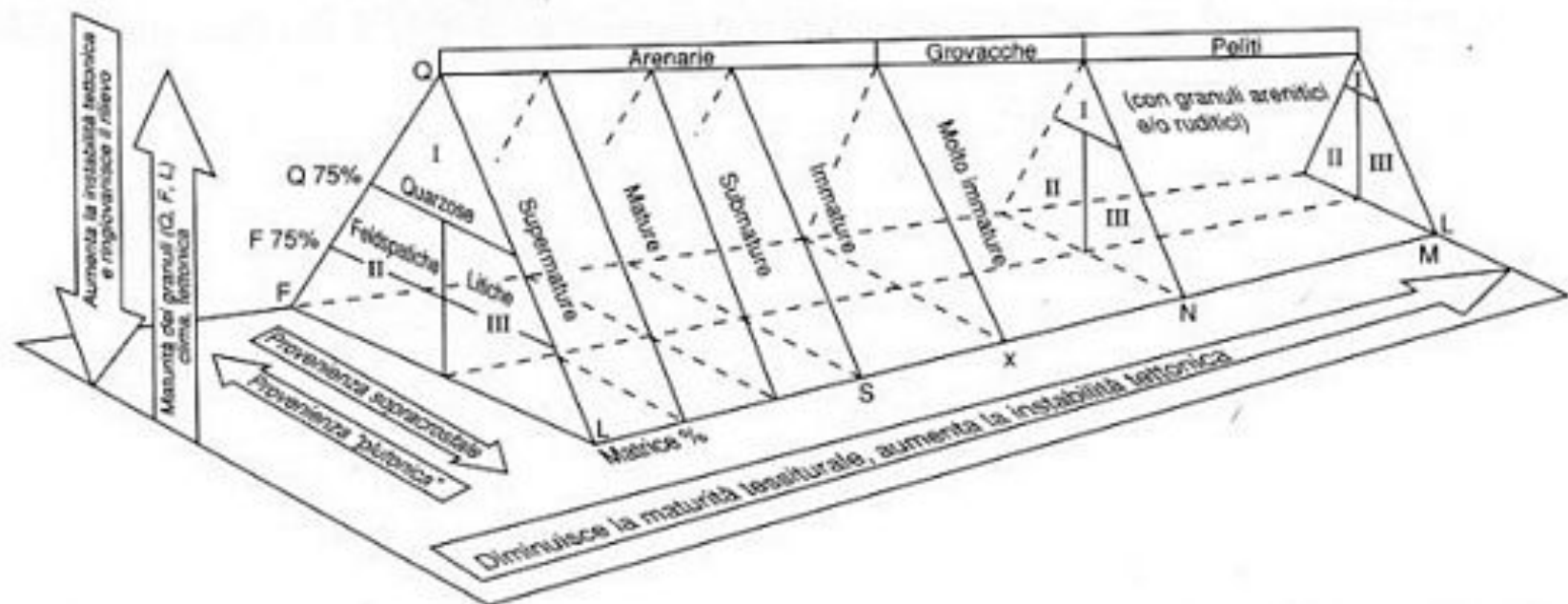
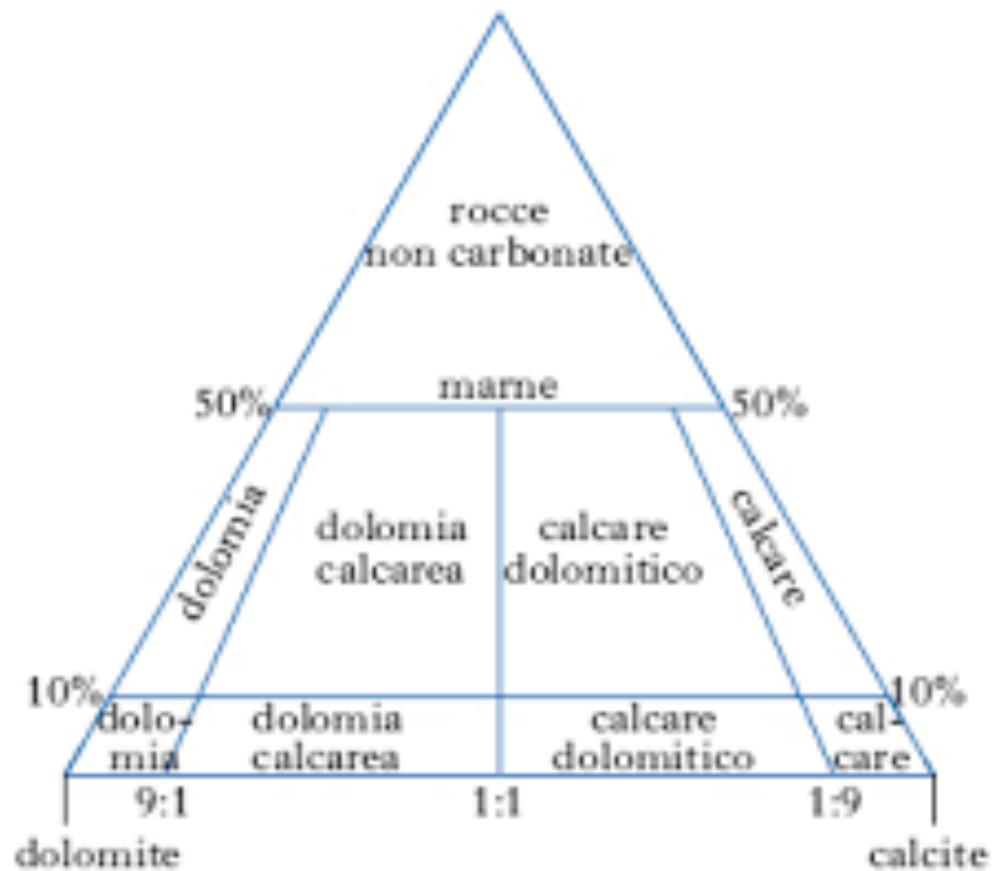


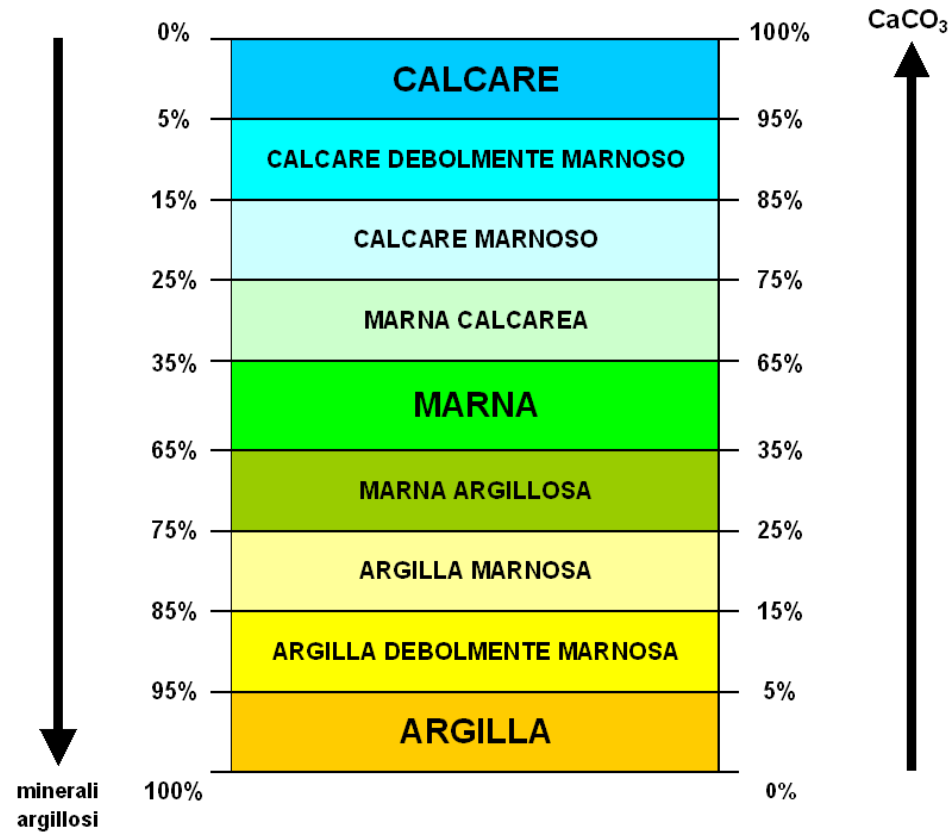
Fig. 2.1 Schema classificativo per rocce sedimentarie detritiche (da Tucker, 2001- "Sedimentary petrology").



Classificazione delle areniti in funzione della maturità mineralogica e tessiturale, ispirata a Chen (da D'Argenio e Pescatore, 1970).



Classificazione mineralogica delle rocce carbonatiche.
 Da: Carr et al. (1994).



Termini di passaggio tra calcare (100% di carbonato di calcio) e argilla (100% di minerali argillosi). Le marne in senso stretto si trovano nel campo tra 35% e 65% (da: wikipedia).