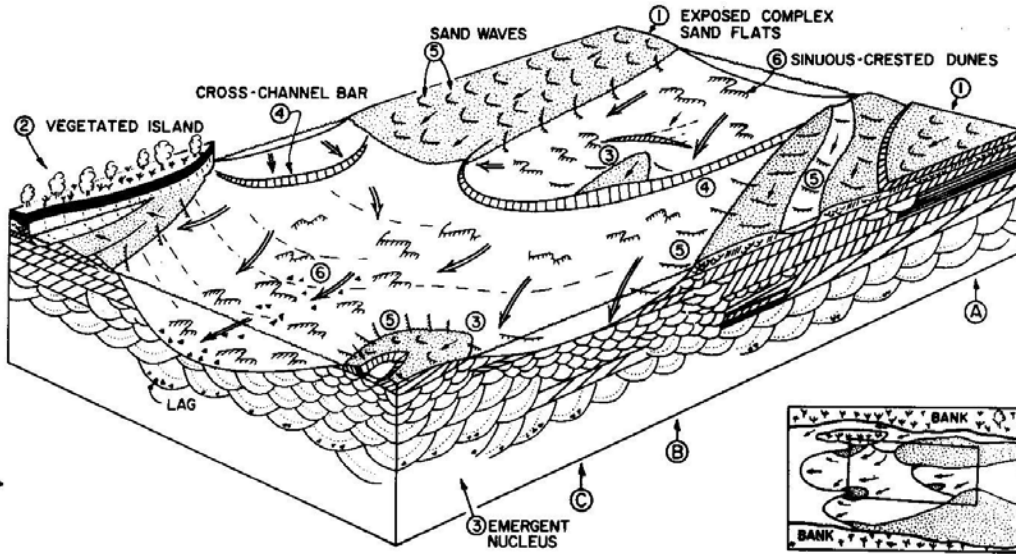
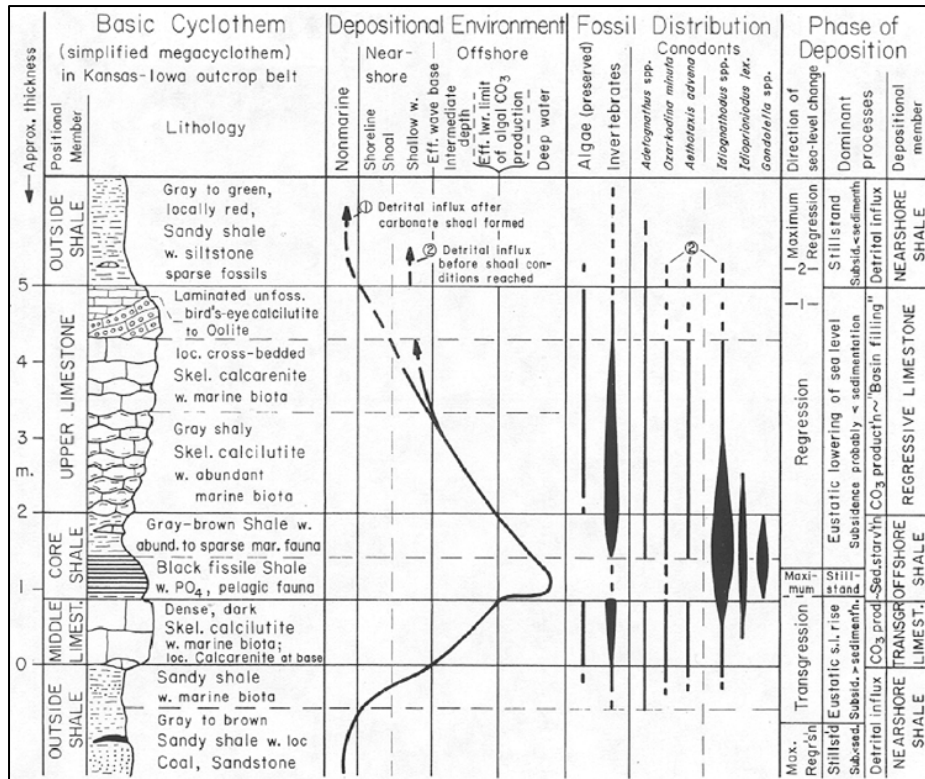


GY 402 Sedimentary Petrology

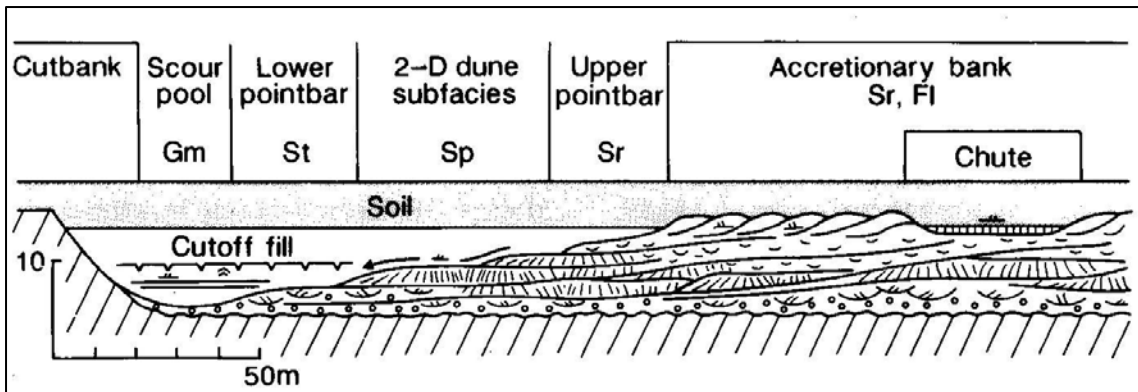
Lecture 8: Sedimentary Facies



From Walker and James (2001)



Source: http://www.kgs.ku.edu/PRS/publication/ofr2003-82/gif/figure1_06.gif



Sedimentary Structures	Sediment Type	Description	Depositional Processes	Depositional Environments
	Gravel	Crossbedded pebble quartzite and feldspathic conglomerate.	Flood transport in braided channels.	Mid-alluvial apron.
	Crossbedded Sand	Coarse- to fine-grained crossbedded feldspathic sand.	Sheetflood and channelled transport and deposition in the upper part of the lower flow regime.	Sandy alluvial apron.
	Flat-Laminated Sand	Medium- to fine-grained, flat-laminated sand with occasional climbing ripples and mudchips.	Sheetflood transport and deposition in the upper flow regime.	
	Discontinuous Layer	Fine sand-to-silt lenses interbedded with silty mud layers, rare mudchip concentrations.	Decelerating flood and prolonged flow transport and deposition the lower flow regime.	Sandflats at the toes of alluvial aprons.
	Even Couple	Even, mudcracked graded fine sand and silt-to-mud layers.	Sheetflood transport and deposition.	Sandflats
	Mudcracked Even Couplet	Mudcracked, graded, even, fine sand-to-mud layers.	Sheetflood flow across exposed mudflats followed by deceleration, suspension settleout, & desiccation.	Exposed playa mudflats.
	Mudcracked Lenticular Couplet	Oscillation-rippled fine sand and silt lenses, capped by clay laminae, cut by mudcracks.	Wave transport of fine sand and silt, followed by clay settleout and desiccation.	Submerged & exposed playa mudflats.
	Mudcracked Mud	Mud layers up to 2 cm thick, cut by mud-filled mudcracks.	Suspended load transport across dried playa floors, followed by submergence and desiccation.	Dry playa mudflats.
	Microlamina	Interlayered and graded silt and clay laminae.	Alternating silt and clay suspension settleout.	Lake margin wind setup flats.
	Coarse Sand and Intraclast	Coarse- to fine-grained, quartz and calcite sand and planar clasts, crossbedded and imbricated at various angles.	Transport of coarse grains and scoured clasts by breaking waves.	Beaches, shoals, and lake margin oolitic sandflats.
	Carbonate Mud	Micrite and dolomitic without detectable siliciclastic laminations.	Aragonite or calcite precipitation, in places followed by dolomitization.	Carbonate-saturated perennial lake bottom.
	Uncracked Lenticular Couplet	Non-cracked oscillation-rippled, fine sand and silt lenses, capped by clay laminae.	Wave accumulation of fine sand and silt into ripples, followed by suspension settleout.	Shallow submerged playa and perennial lake margin.
	Hummocky Silt	Hummocky and plane-laminated silt and fine sand layers.	Storm transport of fine sand and silt, and deposition from oscillatory flow.	Perennial lake bottom within reach of storms.
	Pinch-and-Swell Couplet	Graded, medium gray, fine sand with undulating scoured and loaded bases to dark gray mud layers.	Episodic scour and transport of fine sand, silt and clay by storm waves and deposition by oscillatory flow, followed by suspension settleout.	Perennial lake bottom swept by storms and turbidity flows.
	Pinch-and-Swell Couple			
	Bouldery Sand and Mud	Matrix-supported angular to round boulders in poorly stratified sand and mud.	Slump and debris flow transport and deposition.	Perennial lake bottom below storm base.
	Muddy Graded Sand	Graded structureless or plane-laminated dark muddy sand beds.	Turbidity flow transport and deposition.	
	Uncracked Even Couplet	Even, uncracked graded silt-to-clay couplets.	Episodic suspension transport and settleout.	
	Plane-Laminated Silt and Clay	Even, sharply bounded silt and clay interlaminae.	Alternating silt and clay transport and settleout.	

Source: http://geology.isu.edu/Digital_Geology_Idaho/Module2/Belt_SedStruct_sml.jpg