

GLACIAL GEOLOGY

OUTWASH

SOURCE OF WATER

Melting Glacier - source not constant

Daily -

Seasonal

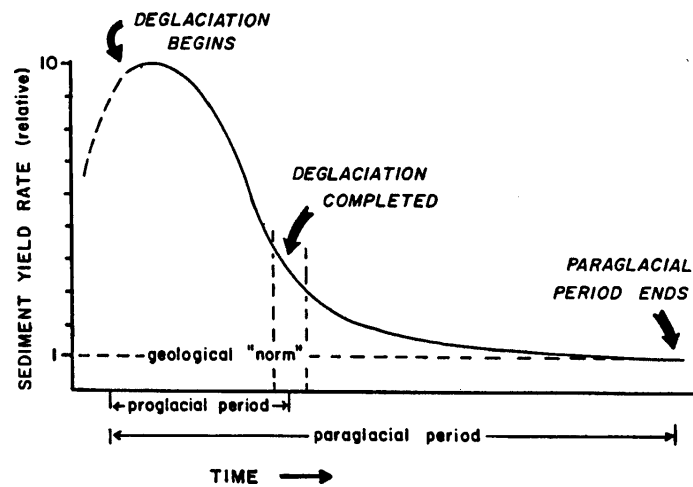
Floods - jokulhaups

Rain

storm events

SEDIMENT TRANSPORT

Lots early - then volume drops off (Church)



Streams at carrying capacity - braided stream

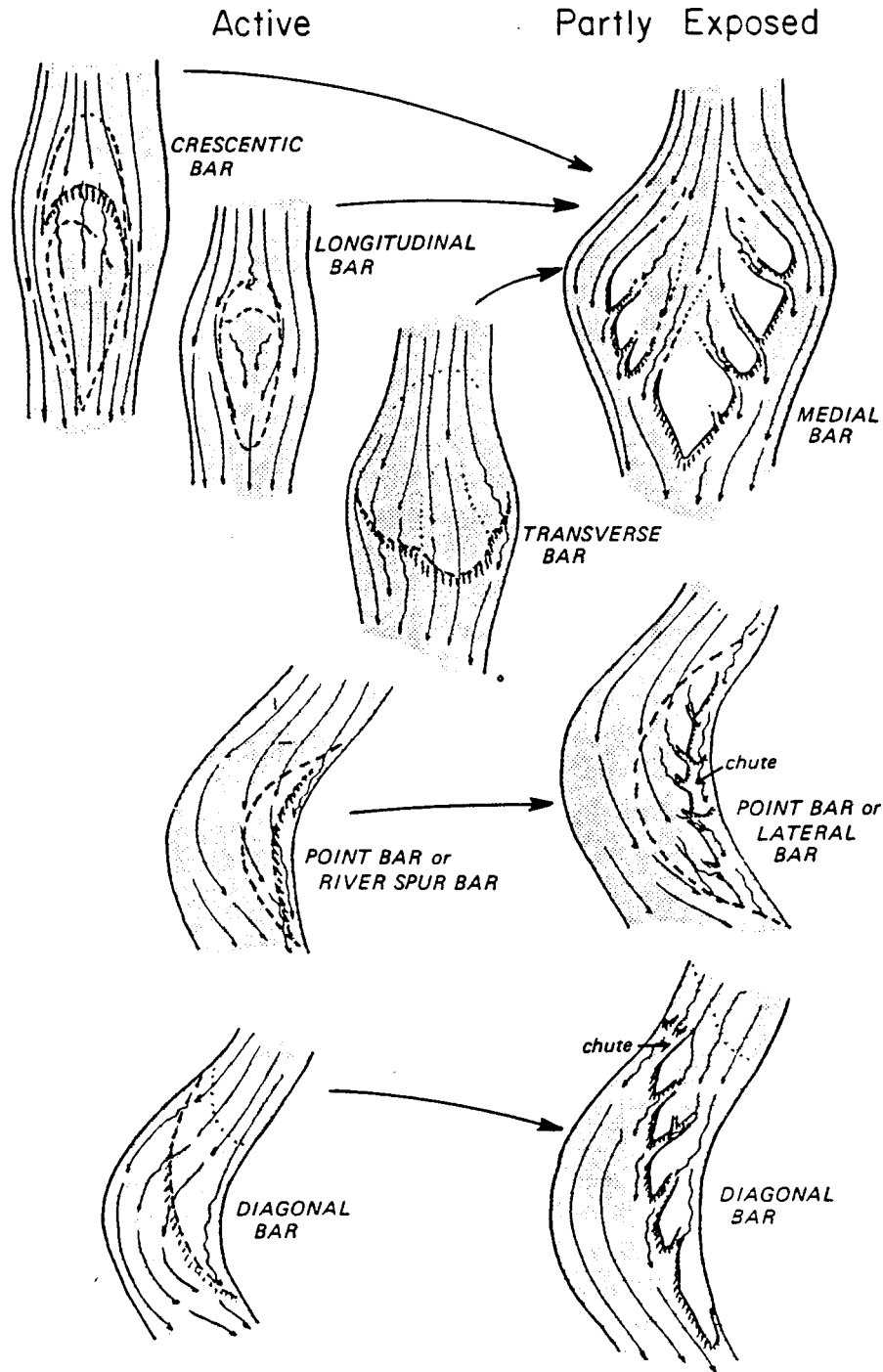
Sorting - high to low energy

SEDIMENTARY FEATURES

Bar Scale

Types of bars -

crescentic, longitudinal, medial, etc



Unit bars (left) commonly found in gravel-bed sandur channels, and erosively modified bars into which the unit bars frequently develop (right). From Chruuch and Jones(1982).

Bed Scale

Bedforms

massive, trough, planer, (different sand sizes)

variable within one bar

lithofacies code

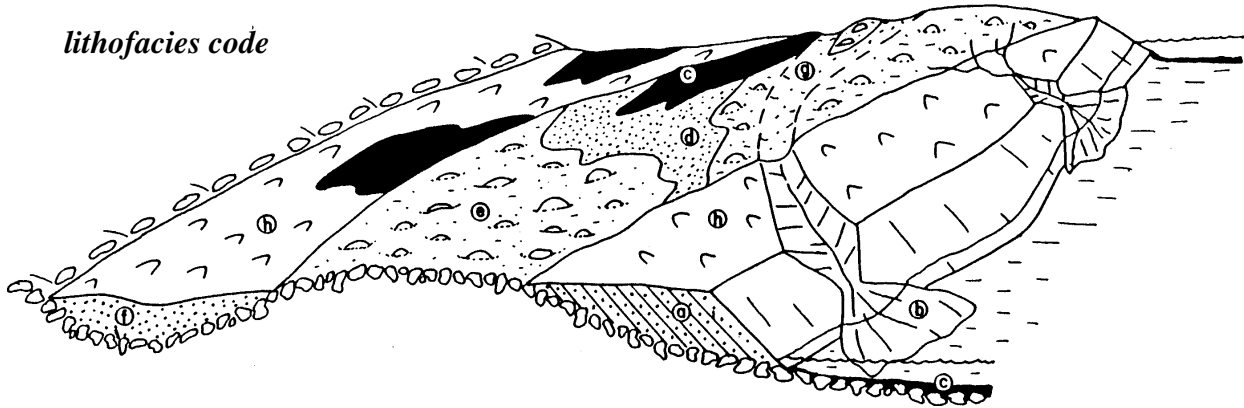
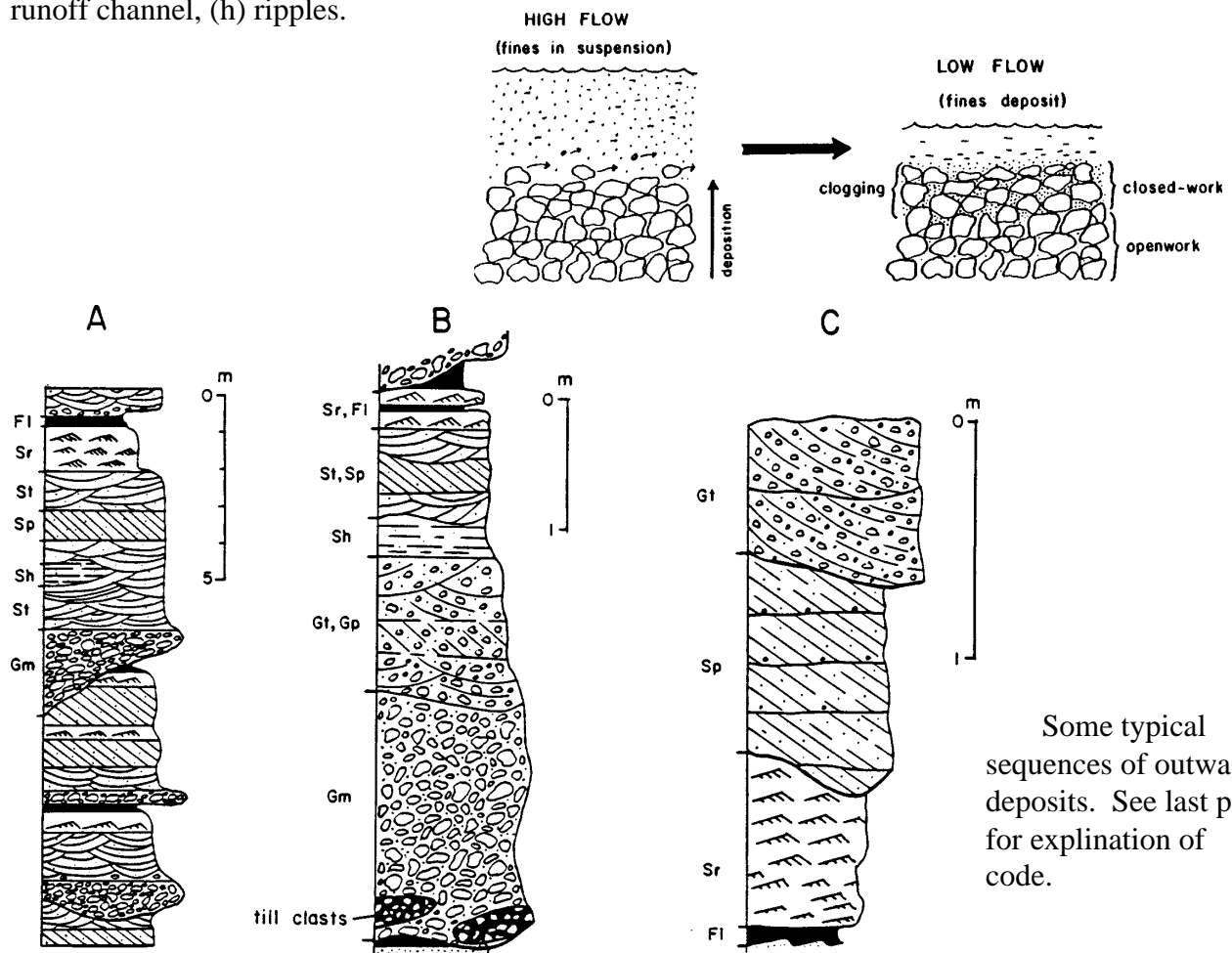


Fig. 3-12. Sketch showing colrunon types of waning-stage features in gravelly sandar: (a) sand wedge with planar cross-strata formed on down-current margin of gravel bar, (b) "spill-off" lobe formed by dissection of sand wedge, (c) clay/silt drapes on bar surface and Backwater channel, (d) sand drape, (e) surface gravel with infilled fine-grained matrix, (f) sand-plugged abandoned channel, (g) late-stage runoff channel, (h) ripples.



Some typical sequences of outwash deposits. See last page for explanation of code.

LANDFORMS

Outwash plain (Valley Train), sandur

Facies changes source to end (the end may vary)

examples: Scott, Skeidararsandur

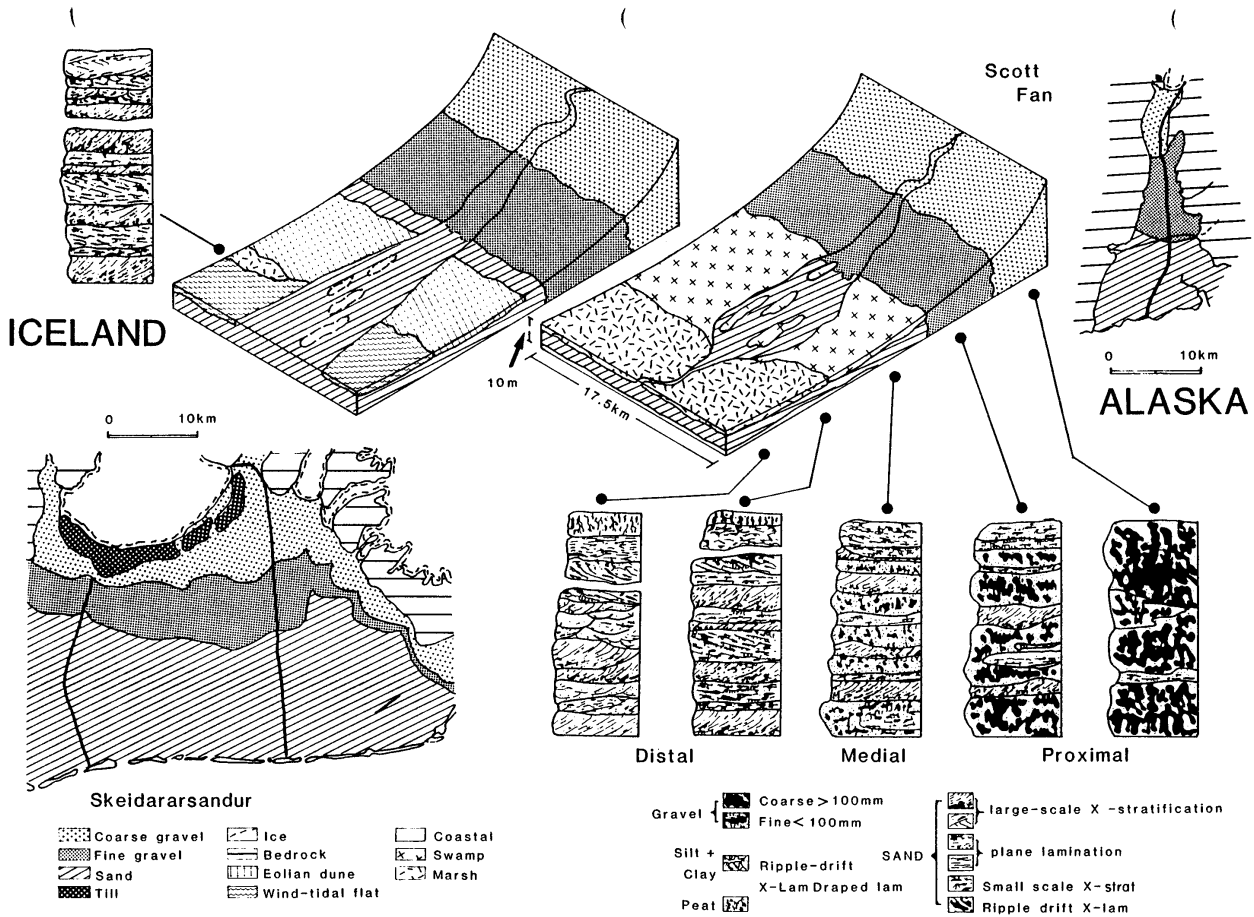


Figure 10.14 Composite scheme for the facies changes on glaci-fluvial braidplains. Icelandic and Alaskan models are shown from Boothroyd and Nummedal (1978), illustrating variations in grain size as well as core and lateral/distal facies. Vertical sequences are also shown.

Terraces - form with changing conditions

Sediment concentrations, water vol, base level?

Move source.

Facies Code	Lithofacies	Sedimentary structures	Interpretation
<i>Gms</i>	massive, matrix supported gravel	none	debris flow deposits
<i>Gm</i>	massive or crudely bedded gravel	horizontal bedding, imbrication	longitudinal bars, lag deposits, sieve deposits
<i>Gt</i>	gravel, stratified	trough crossbeds	minor channel fills
<i>Gp</i>	gravel, stratified	planar crossbeds	linguoid bars or deltaic growths from older bar remnants
<i>St</i>	sand, medium to v. coarse, may be pebbly	solitary (theta) or grouped (pi) trough crossbeds	dunes (lower flow regime)
<i>Sp</i>	sand, medium to v. coarse, may be pebbly	solitary (alpha) or grouped (omikron) planar crossbeds	linguoid, transverse bars, sand waves (lower flow regime)
<i>Sr</i>	sand, very fine to coarse	ripple marks of all types	ripples (lower flow regime)
<i>Sh</i>	sand, very fine to very coarse, may be pebbly	horizontal lamination, parting or streaming lineation	planar bed flow (l. and u. flow regime)
<i>Sl</i>	sand, fine	low angle (<10°) crossbeds	scour fills, crevasse splays, antidunes
<i>Se</i>	erosional scours with intraclasts	crude crossbedding	scour fills
<i>Ss</i>	sand, fine to coarse, may be pebbly	broad, shallow scours including eta cross-stratification	scour fills
<i>Sse, She, Spe</i>	sand	analogous to <i>Ss, Sh, Sp</i>	eolian deposits
<i>Fl</i>	sand, silt, mud	fine lamination, very small ripples	overbank or waning flood deposits
<i>Fsc</i>	silt, mud	laminated to massive	backswamp deposits
<i>Fcf</i>	mud	massive, with freshwater molluscs	backswamp pond deposits
<i>Fm</i>	mud, silt	massive, desiccation cracks	overbank or drape deposits
<i>Fr</i>	silt, mud	rootlets	seatearth
<i>C</i>	coal, carbonaceous mud	plants, mud films	swamp deposits
<i>P</i>	carbonate	pedogenic features	soil

An example of a code to log sedimentary sequences (After Miall, 1979)