GL340 Sedimentology and Stratigraphy
Laboratory 5
Description and Interpretation of Stratigraphic Section

Purpose: To acquaint you with some standard techniques for measurement of a stratigraphic section, collection of samples, and laboratory analysis of samples utilizing data gathered in the field.

Method: You will measure and describe the stratigraphic section in an exposure situated in the Cape area. A brief report, including graphic presentation of the section and fossil identifications, will be prepared. You will work in concert with a laboratory partner(s).

Field Procedure:

1. The designated section will be measured with a steel tape, Jacob's staff, transit, or whatever means is sufficiently accurate for the level of detail and suitable for the logistical obstacles of the target section. Units may be measured with either English or Metric scales, as long as the same scale is used consistently. Before commencing measurement, examine the section and decide on the subdivisions that are to be described. Normally, each measured unit will constitute a homogeneous bed (or group of beds) which has (have) uniform composition, texture, structure, and fabric. Each bed will be numbered, starting with "1" at the base of the section.

2. Describe each unit in detail. Each description should include: lithology (rock type, mineralogy, color, as well as grain-size, sorting, and rounding if applicable), sedimentary structures (e.g. bedding, bedding-plane features, etc.), and fossils. You may find it more practical to take samples back to the lab in order to determine some of these descriptive features (e.g. grain-size). An example description is given below.

.3-.9m Limestone, (Calcite and minimal if any Dolomite), Light-gray, organized into medium thickness beds consisting of rippled, coarse, well-sorted, well-rounded/abraded grains (dominantly skeletal fragments) at bottom, and thickly laminated mud at the top (Mud approx. 50%, Coarse sand approx. 30%, and gradational mix of the two approx. 20%), fossils include fragments of brachiopods, echinoderms, bivalves, and other unrecognizable skeletal fragments, a few distinguishable Archimedes, Fenestrellina, and Rhynchotreta.

0-.3m Sandstone (quartz (40%), feldspar (30%), rock fragments (10%), clay (10%), calcite cement (10%)), Reddish-orange, Medium-sand, Poorly sorted, Poorly rounded, Medium-bedded, Cross-bedded, ripple marks and tool marks on bedding surfaces, Fossils consist of Atrpya, assorted shell fragments, several individual vertical burrows (including Skolithos), and a few undefinable plant fragments.

Be sure to include the nature of unit contacts and any paleocurrent indicators in your description.

3. Each unit will be sketched carefully and to scale in your notebook. Be sure to show the erosional profile of each bed. This sketch will be the basis for the graphic illustration that will accompany your report. See attached page for example.

4. Fossils will be collected for further study. Each fossil, as well as all other samples, should be numbered in correspondence with the bed from which they were collected. Be sure to record at the time of collection the orientation of fossils with respect to the bed, lithology of the bed, and any other features which may be helpful for future interpretations. You should identify fossils to at least the level of family, and genus or species when possible. You may find The Treatise of Invertebrate Paleontology to be helpful in this task. Each distinct taxon will be labelled using printed labels which will be furnished by your instructor. This label should include:
   a. Fossil name
   b. Formation name
   c. Locality, including general description (e.g. road cut on south side of State Highway 1) and township and range location to the nearest quarter section. The latter information will be obtained from a topographic map(s) available from the instructor.
   d. Collector's name, followed by date of collection
   e. Identifier's name

   At least one fossil should be identified by every member of a group.

Report: The laboratory report will be in four parts.

1. Description of the measured section. Uppermost unit will be at top of the page, and lowermost unit at bottom of written description.

2. Graphic section, which is a carefully prepared drawing that depicts basic features of the section to scale. See attached example. Section should include a scale, a title, and a legend, explaining semble used in the graphic section.

3. Interpretation of depositional environments. This will begin with a statement of the evidence and will be followed by environmental interpretation. Vertical changes in lithology, structure, texture, etc. reflect changes of environment. Be certain that your interpretation accounts for such changes. The report should focus on the goals set forth at the beginning of the lab.

4. Fossil collections will be turned in with the report.

Equipment: In the field you will need a notebook, pencil, acid bottle, hammer, measuring devise, collecting bags, and hand lens (optional). Measuring devices are available from the instructor.

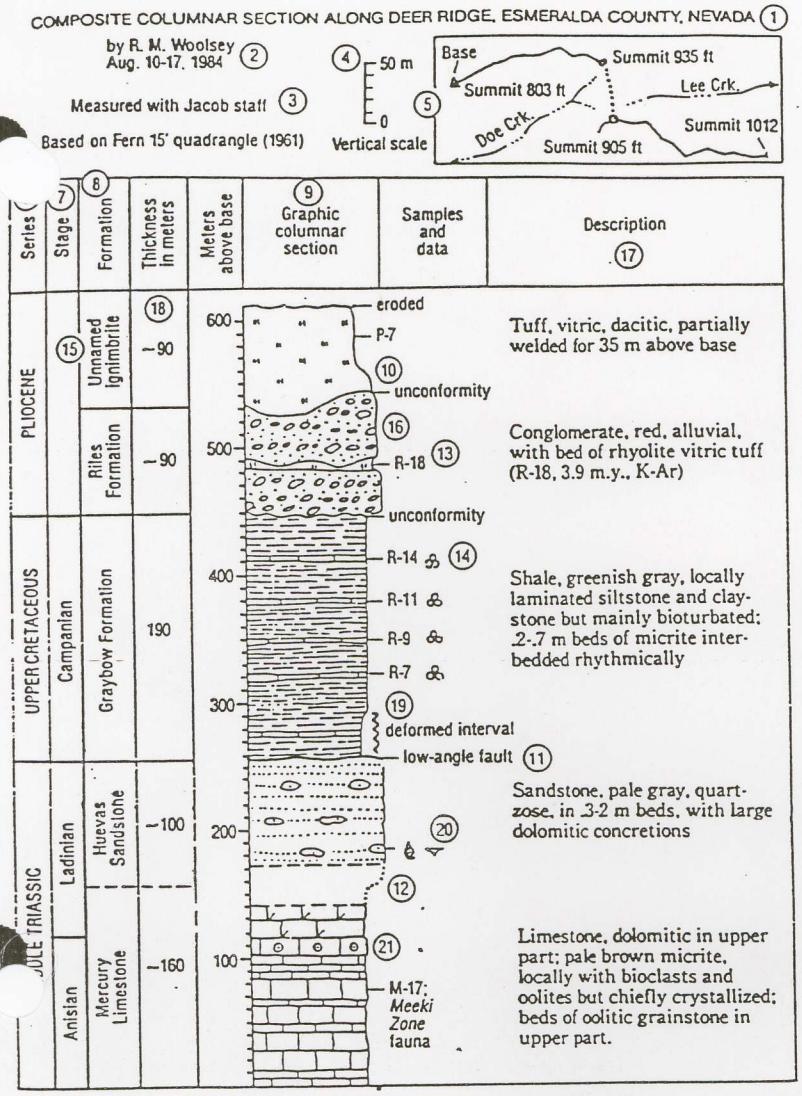


Fig. 11-15. Columnar section with title and accessory data. Numbered items are identified in the text.

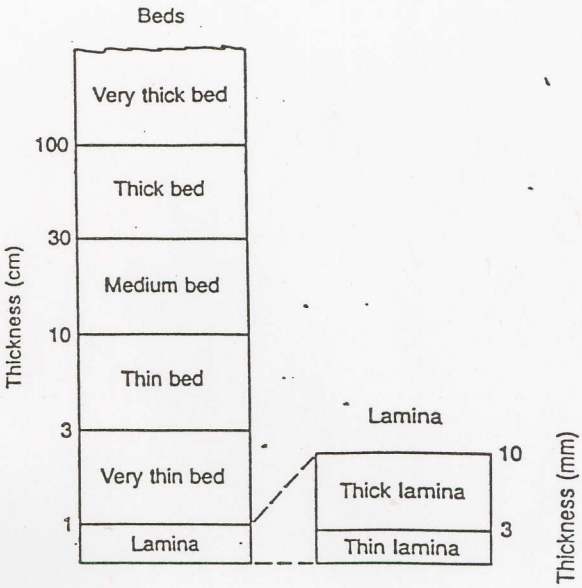
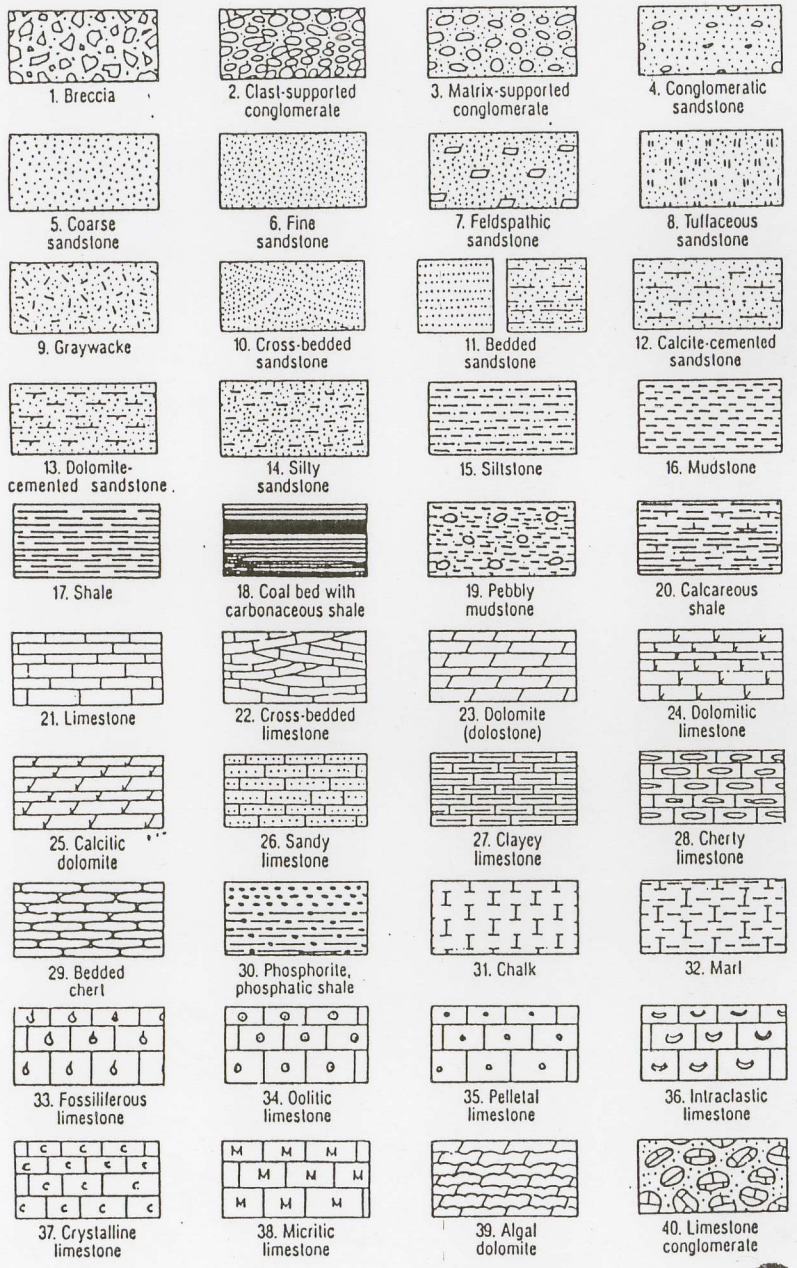


FIGURE 6.1 Terms used for describing the thickness of beds and laminae. (Modified from McKee, E. D., and G. W. Weir, 1953, Terminology for stratification and cross-stratification is sedimentary rocks: Geol. Soc. America Bull., v. 64, Table 2, p. 383; and Ingram, R. L., 1954, Terminology for the thickness of stratification and parting units in sedimentary rocks: Geol. Soc. America Bull., v. 65, Fig. 1, p. 937.)

Table 4-1. Classification of Clastic Sediments by Grain Size.

Median diameter in mm	Phi scale	Sediment name	Group name
256	−8	Boulder gravel	Rudite (psephite)
128	−7	Coarse cobble gravel	
64	−6	Fine cobble gravel	
32	−5	Very coarse pebble gravel	
16	−4	Coarse pebble gravel	
8	−3	Medium pebble gravel	
4	−2	Fine pebble gravel	
2	−1	Very fine pebble gravel	
1	0	Very coarse sand	Arenite (psammite)
.5	1	Coarse sand	
.25	2	Medium sand	
.125	3	Fine sand	
.06	4	Very fine sand	
.03	5	Coarse silt	Lutite (pelite)
.015	6	Medium silt	
.008	7	Fine silt	
.004	8	Very fine silt	
		Clay (any detritus this size)	

APPENDIX 8:
Lithologic Patterns for Stratigraphic Columns and Cross Sections



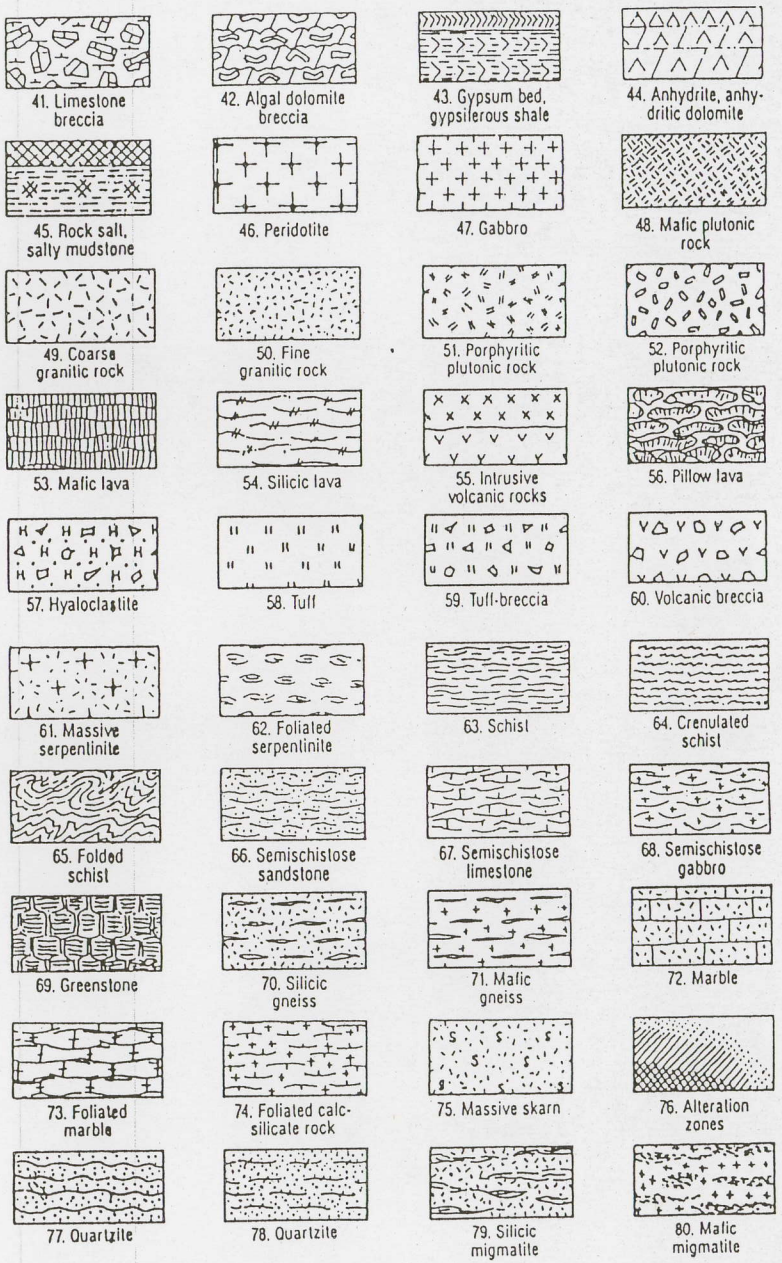


TABLE 7.5 Classification of sedimentary conglomerates and breccias

EPICLASTIC	Extraformational (clasts derived from outside depositional basin)	Orthoconglomerates (matrix <15%)	Metastable clasts <10%	Orthoquartzitic (oligomict) conglomerate (composed of pebbles of one type)
			Metastable clasts >10%	Petromict conglomerate (composed of pebbles of more than one type) (specify dominant type—e.g., limestone conglomerate)
		Paraconglomerates (matrix >15%); also called diamictites	Laminated matrix	Laminated conglomeratic mudstone or argillite
			Nonlaminated matrix	Tillite (glacial) Tilloid (nonglacial)—e.g., pebbly mudstones, olistostromes
	Intraformational (clasts derived from erosion of sediments within the depositional basin)	Intraformational conglomerates and breccias		
PYROCLASTIC	Volcanic breccias and agglomerates			

Source: Pettijohn, F. J., 1975, Sedimentary rocks, 3rd ed., Table 6.2, p. 165, reprinted by permission of Harper & Row, New York.

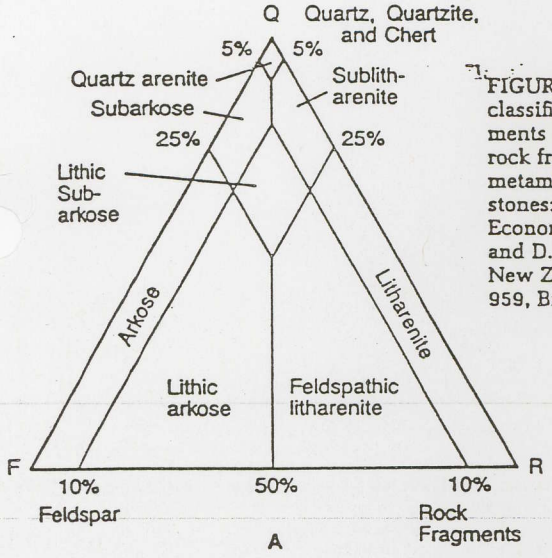


FIGURE 7.13 Classification of sandstones according to (A) McBride and (B) Folk. In Folk's classification, chert is included with rock fragments at the R pole, and granite and gneiss fragments are included with feldspars at the F pole. SS = sandstone, SH = shale, CRF = carbonate rock fragments, SRF = sedimentary rock fragments, IRF = igneous rock fragments, MRF = metamorphic rock fragments. (A, from McBride, E. F., 1963, A classification of common sandstones: Jour. Sedimentary Petrology, v. 34. Fig. 1, p. 667, reprinted by permission of Society of Economic Paleontologists and Mineralogists, Tulsa, Okla. B, from Folk, R. L., P. B. Andrews, and D. W. Lewis, 1970, Detrital sedimentary rock classification and nomenclature for use in New Zealand: New Zealand Jour. of Geology and Geophysics, v. 13. Fig. 8, p. 955, and Fig. 9, p. 959, British Crown copyright, reprinted by permission.)

DEPOSITIONAL TEXTURE RECOGNIZABLE					DEPOSITIONAL TEXTURE NOT RECOGNIZABLE
Original components not bound together during deposition				Original components were bound together during deposition . . . as shown by intergrown skeletal matter, lamination contrary to gravity, or sediment-floored cavities are roofed over by organic or questionably organic matter and are too large to be interstices.	CRYSTALLINE CARBONATE
Contains mud (particles of clay and fine silt size)			Lacks mud and is grain-supported		
Mud-supported		Grain-supported			
Less than 10% grains	More than 10% grains				(Subdivide according to classifications designed to bear on physical texture or diagenesis.)
MUDSTONE	WACKESTONE	PACKSTONE	GRAINSTONE	BOUNDSTONE	

FIGURE 8.11 Classification of carbonate rocks on the basis of depositional texture. (After Dunham, R. J., 1962, Classification of carbonate rocks according to depositional texture, in W. E. Ham (ed.), Classification of carbonate rocks: Am. Assoc. Petroleum Geologists Mem. 1. Table 1, p. 117, reprinted by permission of AAPG, Tulsa, Okla.)

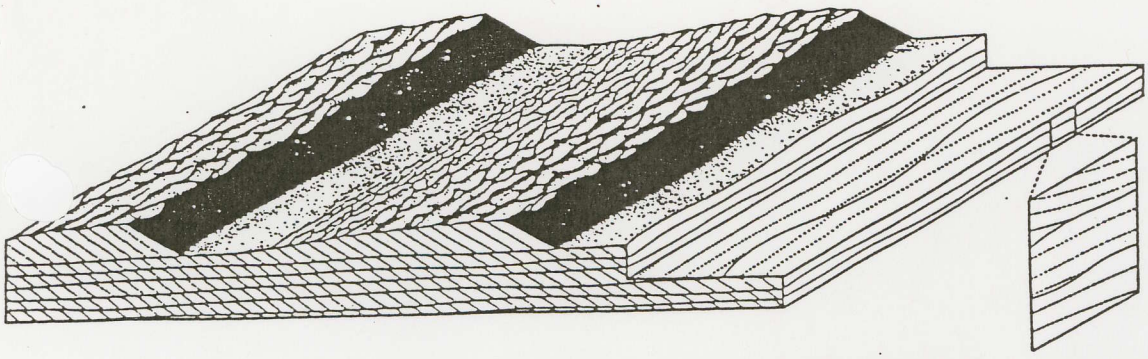


FIGURE 6.21 Diagram illustrating large-scale tabular cross-bedding formed by migrating sand waves. Flow is from left to right. (From Harms, J. C., J. B. Southard, and R. G. Walker, 1982, Structures and sequences in clastic rocks: Soc. Econ. Paleontologists and Mineralogists Short Course No. 9. Fig. 3–11, p. 3–21, reprinted by permission of SEPM, Tulsa, Okla.)

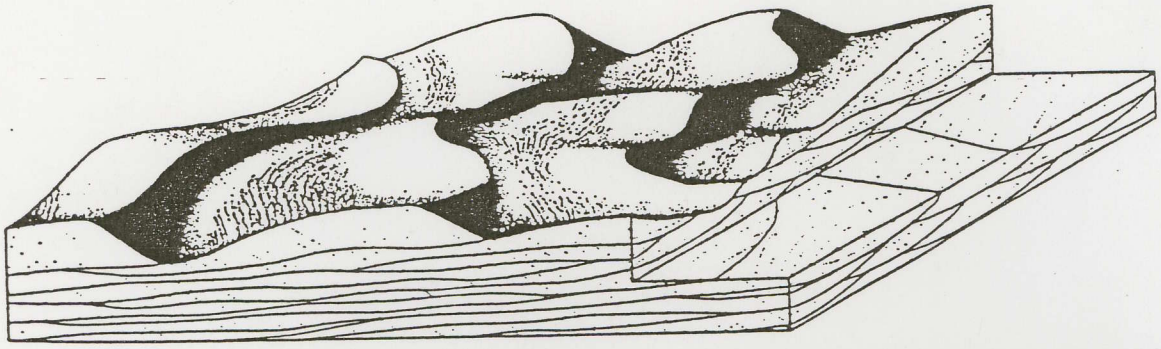


FIGURE 6.22 Diagram illustrating large-scale trough cross-bedding formed by migrating dunes. Flow is from left to right. (From Harms, J. C., J. B. Southard, and R. G. Walker, 1982, Structures and sequences in clastic rocks: Soc. Econ. Paleontologists and Mineralogists Short Course No. 9. Fig. 3–10, p. 3–19, reprinted by permission of SEPM, Tulsa, Okla.)

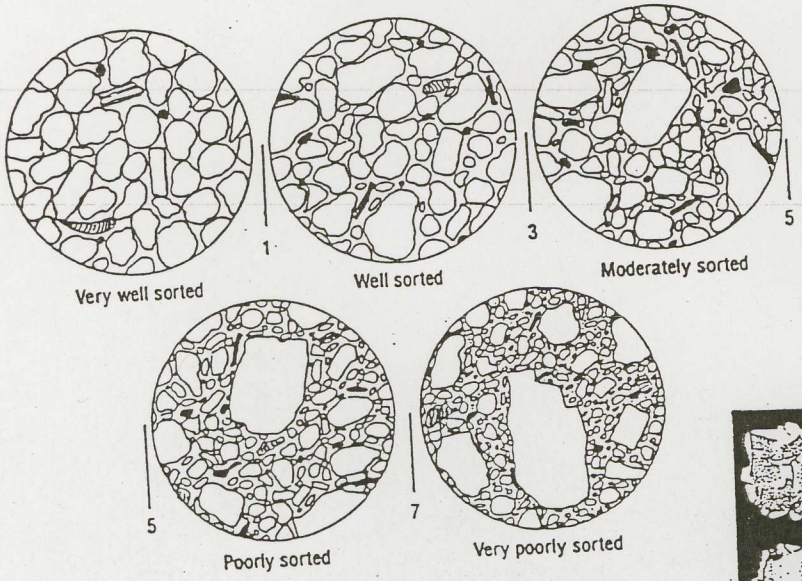


Fig. 4-1. Hand-lens view of one layer of detritus sorted to various degrees

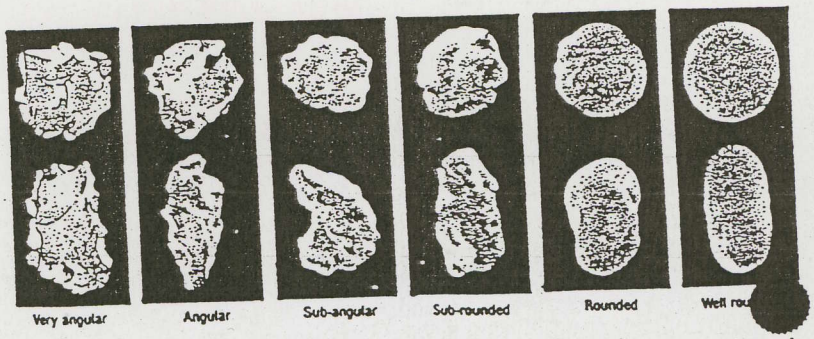


Fig. 4-3. Degrees of rounding of sand-sized grains, the upper set equidimensional (spherical) and the lower somewhat elongated. After Powers, M.C. (1953). © Society of Economic Paleontologists and Mineralogists, copied with permission.

Checklist for Describing Sedimentary Sequences

After the thickness of a sedimentation unit has been determined, the unit should be fully described, including contacts, lithology, color, grain size, fossils, mineralogy, fabric, etc. The following checklist has been prepared to help systematize the descriptions, and the order of points 1 to 12 should be followed in the written descriptions. Most words in field descriptions are abbreviated. You will be provided with a standard list of abbreviations.

Examples of a field description are given below. Obviously, some of the features included on the checklist, particularly items 7-11, will not be represented in a given unit. In that case, they are simply not mentioned.

1. Primary lithology
   - Sandstone, Limestone, Basalt. With Ls, always give the appropriate Folk or Dunham term (e.g., miliolid grainstone, or biosparite)
   - Note: Mudstone is massive, Shale is fissile

2. Grain size
   - describe average size in terms of Wentworth classes

sand:	v. coarse	1 – 2 mm
	coarse	½ – 1 mm
	medium	¼ – ½ mm
	fine	1/8 – ¼ mm
	v. fine	1/16 – 1/8 mm

   - use modifiers such as pebble, silt, clay, etc. where necessary
   - estimate sorting
   - note unusual aspects of texture, such as bimodality

3. Color of fresh or weathered rock
   - use GSA Rock Color Chart if available
   - if not, describe colors in terms of basic colors and simple modifiers e.g, light gray, dark grey-green, very light red-brown. Do not use terms such as light tan or buff, whose meanings are poorly defined.

4. Mineralogy/clasts Lithology/fossils
   - for sandstone, note whether quartzose, feldspathic, lithic, carbonaceous, micaceous, calcareous, glauconitic, etc.
   - for conglomerate or breccia, estimate proportions of different lithologies, by pebble count if possible
   - for limestone, not bioclasts, intraclasts, pellets, oolites, etc.
   - for either terrigenous clastics or carbonates, list fossils and note orientation (if any), preservation, etc.

5. Grain shape and fabric
   - roundness and sphericity
   - imbrication

6. Bedding
   - record actual bedding thickness or use the following:

v. thick	> 100 cm
thick	30 – 100 cm
medium	10 – 30 cm
thin	3 – 10 cm
v. thin	1 – 3 cm
laminated	0.3 – 1 cm
thinly lam	< 0.3 cm

7. Sedimentary structures
   - note types, size and orientation

8. Weathering property or "splitting"
   - record actual thickness or use the following:

massive	> 100 cm
blocky	30 – 100 cm
slabby	10 – 30 cm
flaggy	1 – 10 cm
shaly or platy	0.3 – 1 cm
papery	< 0.3 cm

9. Hardness and outcrop appearance
   - e.g.,

hard	bluff-former
soft	ledge-former
chalky	slope-former

10. Nature of lower
    - obscured by scree, snow, vegetation
    - erosional with x cm relief
    - sharp
    - gradational over x cm or m
    - interfingering

11. Lateral variation
    - note any variation in thickness and/or lithology, and distance over which the change takes place

12. Samples
    - if taken, sample numbers, lithologies, and distance above the base of the unit should be noted with the unit description

CHECKLIST

1.Primary lithology - Ss • Sh • Mdst • Cgl • Ls w/Folk • Bs

2.Grain Size - Cgl: mdy fn sd pbl • Sst: silty fn • Mdst: silty • Sh: md | sorting | Bld- 25.6 • Cbl 6.4-25.6cm • Pbl 0.4-6.4cm • Grn 2-4mm • Snd: vc 1-2 • c 0.5 • m 0.25 • f 0.125 • vf 0.06

3.Color of fresh & weathered - GSA or basic colors

4.Mineralogy/clast | Lithology/fossils - Ss: qzose. fspathic, lithic, carbonaceous, micaceous, calcareous, glauconitic, etc | Cgl or Breccia: est % of diff lithology by pbl cnt | Ls: % bios, intras, peis, oolites, etc | Ter or Carb: fossils & orientation, preservation, etc

5.Grain shape and fabric - round and spher • sort • imbric • unusuals

6.Bedding - actual thickness or vthk >100cm • thk 30 • med 10 • thn 3 • vthn 1 • lam 0.3 • thnlam <0.3

7.Sedimentary structure - type, size, orientation, xbed, etc

8.Weathering properties of "splitting" - actual thickness or massive >100cm • blocky 30 • slabby 10 • flaggy 1 • shaly or platy 0.3 • papery <0.3 | joint spacing & orient | other terms: hackly, flaky, etc

9.Hardness and outcrop appearance - hard: bluff-former • soft: ledge-former • chalky: slope-former

10.Nature of lower contact - obscured by ... • erosional w/x cm relief • sharp • gradational over x cm or m • interfingering

11.Lateral variation - lat varia in thkness and litho and dist

12.Samples - sample #s, litn and dist above base w/unit description

11.0 STANDARD ABBREVIATIONS FOR LITHOLOGIC DESCRIPTIONS

Note: Abbreviations for nouns always begin with a capital letter.

WORD	ABBREVIATION
about	abt
above	ab
absent	abs
abundant	abd
acicular	acic
agglomerate	Aglm
aggregate	Agg
algae, algal	Alg, alg
allochem	Allo
altered	alt
alternating	altg
ammonite	Amm
amorphous	amor
amount	Amt
and	&
angular	ang
anhedral	ahd
anhydrite (-ic)	Anhy, anhy
anthracite	Anthr
aphanitic	aph
appears	ap
approximate	apprx
aragonite	Arag
arenaceous	aren
argillaceous	arg
arkose (-ic)	Ark, ark
as above	a.a.
asphalt (ic)	Asph, asph
assemblage	Assem
associated	assoc
at	@
authigenic	authg
average	Av, av
band (-ed)	Bnd, bnd
basalt (-ic)	Bas, bas
basement	Bm
become (-ing)	bcm
bed (-ed)	Bd, bd
bedding	Bdg
bentonite (-ic)	Bent, bent
bitumen (-inous)	Bit, bit
bioclastic	biocl
bioherm (-al)	Bioh, bioh
biomicrite	Biomi
biosparite	Biosp
biostrom (-al)	Biost, biost
biotite	Biot
birdseye	Bdeye
black (-ish)	blk, blksh
blade (-ed)	Bld, bld
blocky	blky
blue (-ish)	bl, blsh
bored (-ing)	Bor, bor
bottom	Btm
botryoid (-al)	Bot, bot
boulder	Bld
boundstone	Bdst
brachiopod	Brach
brackish	brak
branching	brhg
break	Brk, brk
breccia (-ted)	Brec, brec
bright	brt
brittle	brit
brown	brn
bryozoa	Bry
bubble	Bubl
buff	bu
burrow (-ed)	Bur, bur
calcarenite	Clcar
calcilutite	Clclt
calcirudite	Clcrd
calcisiltite	Clslt
calcisphere	Clcsp
calcite (-ic)	Calc, calctc
calcareous	calc
caliche	cche
carbonaceous	carb
carbonized	cb
cavern (-ous)	Cav, cav
caving	Cvg
cement (-ed, -ing)	Cmt, cmt
cephalopod	Ceph
chalcedony (-ic)	Chal, chal
chalk (-y)	Chk, chky
charophyte	Char
chert (-y)	Cht, cht
chitin (-ous)	Chit, chit
chlorite (-ic)	Chlor, chlor
chocolate	choc
circulate (-ion)	circ, Circ
clastic	clas

WORD	ABBREVIATION
clay (-ey)	Cl, cl
claystone	Clst
clean	cln
clear	clr
cleavage	Clvg
cluster	Clus
coal	C
coarse	crs
coated (-ing)	cotd, cotg, Cotg
coated grains	cotd gn
cobble	Cbl
color (-ed)	Col, col
common	com
compact	cpct
compare	cf
concentric	cncn
conchoidal	conch
concretion (-ary)	Conc, conc
conglomerate (-ic)	Cgl, cgl
conodont	Cono
considerable	cons
consolidated	consol
conspicuous	conspic
contact	Ctc
contamination (-ed)	Contam, contam
content	Cont
contorted	cntrt
coquina (-oid)	Coq, coqid
coral, coralline	Cor, corln
core	c, ¢
covered	cov
cream	crm
crenulated	cren
crinkled	crnk
crinoid (-al)	Crin, crinal
cross	x
cross-bedded	x-bd
cross-laminated	x-lam
cross-stratified	x-strat
crumpled	crpld
crystocrystalline	crpxln
crystal (-line)	Xl, xln
cube, cubic	Cub, cub
cuttings	Ctgs
dark (-er)	dk, dkr
dead	dd
debris	Deb
decrease (-ing)	Decr, decr
dense	dns
depauperate	depau
description	Descr
detrital	detr
devitrified	devit
diabase	Db
diagenesis (-etic)	Diagn, diagn
diameter	Dia
disseminated	dissem
distillate	Dist
ditto	" or do
dolomite (-ic)	Dol, dol
dominant (-ly)	dom
drilling	drlg
drill stem test	DST
drusy	dru
earthy	ea
east	E
echinoid	Ech
elevation	Elev
elongate	elong
embedded	embd
equant	eqnt
equivalent	Equiv
euhedral	euhd
euxinic	eux
evaporite (-itic)	Evap, evap
excellent	ex
exposed	exp
extraclast (-ic)	Exclas, exclas
extremely	extr
extrusive rock, extrusive	Exv, exv
facet (-ed)	Fac, fac
faint	fnt
fair	fr
fault (-ed)	Flt, flt
fauna	Fau
feet	Ft
feldspar (-athic)	Fspr, fspr
fenestra (-al)	Fen, fen
ferruginous	ferr
fibrous	fibr
fine (-ly)	f, fnly
fissile	fis
flaggy	flg
flake, flaky	Flk, flk
flat	fl
floating	fltg
flora	Flo
fluorescence (-ent)	Fluor, fluor
foliated	fol
foot	Ft
foraminifer, foraminiferal	Foram, foram

WORD	ABBREVIATION
formation	Fm
fossil (-iferous)	Foss, foss
fracture (-d)	Frac, frac
fragment (-al)	Frag, frag
frequent	freq
fresh	frs
friable	fri
fringe (-ing)	Frg, frg
frosted	fros
frosted quartz grains	F.Q.G.
fucoid (-al)	Fuc, fuc
fusulinid	Fus
gabbro	Gab
gastropod	Gast
gas	G
generally	gen
geopetal	gept
gilsonite	Gil
glass (-y)	Glas, glas
glauconite (-itic)	Glauc, glauc
Globigerina (-inal)	Glob, glob
gloss (-y)	Glos, glos
gneiss (-ic)	Gns, gns
good	gd
grading	grad
grain (-s, -ed)	Gr, gr
grainstone	Grst
granite	Grt
granite wash	G.W.
granule (-ar)	Gran, gran
grapestone	grapst
graptolite	Grap
gravel	Grv
gray, grey (-ish)	gry, grysh
graywacke	Gwke
greasy	gsy
green (-ish)	gn, gnsh
grit (-ty)	Gt, gt
gypsum (-iferous)	Gyp, gyp
hackly	hkl
halite (-iferous)	Hal, hal
hard	hd
heavy	hvy
hematite (-ic)	Hem, hem
Heterostegina	Het
heterogeneous	hetr
high (-ly)	hi
homogeneous	hom
horizontal	hor
hydrocarbon	Hydc
igneous rock (igneous)	Ig, ig
impression	Imp
inch	In
inclusion (-ded)	Incl, incl
increasing	incr
indistinct	indst
indurated	ind
Inoceramus	Inoc
in part	I.P.
insoluble	insl
interbedded	intbd
intercalated	intercal
intercrystalline	intxln
intergranular	intgran
intergrown	intgn
interlaminated	intrlam
interparticle	intpar
intersticies (-itial)	Intst, intst
interval	Intvl
intraclast (-ic)	Intclas, intclas
intraparticle	intrapar
intrusive rock, intrusive	Intr, intr
invertebrate	Invtb
iridescent	irid
ironstone	Fe-st
irregular (-ly)	irr
isopachous	iso
jasper	Jasp
joint (-ed, -ing)	Jt, jt
kaolin (-itic)	Kao, kao
lacustrine	lac
lamina (-tions, -ated)	Lam, lam
large	lge
laterite (-itic)	Lat, lat
lavender	lav
layer	Lyr
leached	lchd
lens, lenticular	Len, lent
light	lt
lignite (-itic)	Lig, lig
limestone	Ls
limonite (itic)	Lim, lim
limy	lmy
lithic	lit
lithographic	lithgr
lithology (-ic)	Lith, lith
little	Ltl
littoral	litt

WORD	ABBREVIATION
local	loc
long	lg
loose	lse
lower	l
lustre	Lstr
lutite	Lut
macrofossil	Macrofos
magnetite, magnetic	Mag, mag
manganese, manganiferous	Mn, mn
marble	Mbl
marl (-y)	Mrl, mrl
marlstone	Mrlst
marine	marn
maroon	mar
massive	mass
material	Mat
matrix	Mtrx
maximum	max
medium	m or med.
member	Mbr
meniscus	men
metamorphic rock, metamorphic (-osed)	Meta
mica (-ceous)	meta, metaph
micrite (-ic)	Mic, mic
microcrystalline	Micr, micr
microfossil (-iferous)	microxln
micrograined	Microfos, microfos
micro-oolite	micgr
micropore (-osity)	Microol
microspar	Micropor, micropor
microstylolite	Microspr
middle	Microstyl
miliolid	Mid
milky	Milid
mineral (-ized)	mky
minor	Min, min
moderate	mnr
mold (-ic)	mod
mollusc	Mol, mol
mosaic	Moll
mottled	mos
mud (-dy)	mott
mudstone	md, mdy
muscovite	Mdst
	Musc
nacreous	nac
nodules (-ar)	Nod, nod
north	N
no sample	n.s.
no show	n/s

WORD	ABBREVIATION
novaculite	Novac
no visible porosity	n.v.p.
numerous	num
occasional	occ
ochre	och
oil	O
oil source rock	OSR
olive	olv
ooid (-al)	Oo, oo
oolicast (-ic)	Ooc, ooc
oolite (-itic)	Ool, ool
oomold (-ic)	Oomol, oomol
oncolite (-oidal)	Onc, onc
opaque	op
orange (-ish)	or, orsh
Orbitolina	Orbit
organic	org
orthoclase	Orth
orthoquartzite	O-Qtz
ostracod	Ostr
overgrowth	ovgth
oxidized	ox
oyster	Oyst
packstone	Pkst
paper (-y)	Pap, pap
part (-ly)	Pt, pt
particle	Par, par
parting	Ptg
parts per million	PPM
patch (-y)	Pch, pch
pebble (-ly)	Pbl, pbl
pelecypod	Pelec
pellet (-al)	Pel, pel
pelletoid (-al)	Peld, peld
permeability (-able)	Perm, k, perm
pendular (-ous)	Pend, pend
petroleum, petroliferous	Pet, pet
phlogopite	Phlog
phosphate (-atic)	Phos, phos
phyllite, phyllitic	Phyl, phyl
phreatic	phr
pink	pk
pinkish	pkish
pin-point (porosity)	p.p.
pisoid (-al)	Piso, piso
pisolite, pisolitic	Pisol, pisol
pitted	pit
plagioclase	Plag
plant	Plt
plastic	plas

WORD	ABBREVIATION
stylolite (-itic)	Styl, styl
subangular	sbang
sublithic	sblit
subrounded	sbrndd
sucrosic	suc
sulphur, sulphurous	Su, su
superficial oolite (-ic)	Spfool, spfool
surface	Surf
syntaxial	syn
tabular (-ate)	tab
tan	tn
terriginous	ter
texture (-d)	Tex, tex
thick	thk
thin	thn
thin-bedded	t.b.
thin section	T.S.
throughout	thru
tight	ti
top	Tp
tough	tgh
trace	Tr
translucent	trnsl
transparent	trnsp
trilobite	Tril
tripoli (-itic)	Trip, trip
tube (-ular)	Tub, tub
tuff (-aceous)	Tf, tf
type (-ical)	Typ, typ
unconformity	Unconf
unconsolidated	uncons
underclay	Uc
underlying	undly
uniform	uni
upper	u
vadose	Vad, vad
variation (able)	Var, var
variegated	vgt
varicolored	varic
varved	vrvd
vein (-ing, -ed)	Vn, vn
veinlet	Vnlet
vermillon	verm
vertebrate	vrtb
vertical	vert
very	v
very poor sample	V.P.S.
vesicular	ves
violet	vi
visible	vis
vitreous (-ified)	vit
volatile	volat
volcanic rock, volcanic	Volc, volc
vug (-gy)	Vug, vug
wackestone	Wkst
washed residue	W.R.
water	Wtr
wavy	wvy
waxy	wxy
weak	wk
weathered	wthd
well	Wl, wl
west	W
white	wh
with	w/
without	w/o
wood	Wd
yellow (ish)	yel, yelsh
zircon	Zr
zone	Zn

FIELD NOTES NOTES

A few pointers on taking Field Notes (in no particular order):

- PLAN your field notes or follow "suggested" format – don't just start scribbling
- Determine a SCALE before you begin (such as "x" number of lines equals 1 meter, etc.) – and FOLLOW it
- Always START AT THE BOTTOM of each page
- On the outside left of the page, carry a RUNNING TOTAL
- Just to the right of that total, note the individual BED THICKNESS
- DRAW the outcrop – just to the right of your totals
- Leave a small SPACE to keep all your data from running together
- NUMBER your beds as you go
- DESCRIBE each bed – using ALL 11 (or 12) Points – so you will know whether you left out any data you may later want
- ALIGN your "columns" so that you can follow them later – years later, perhaps – particularly if you are going to the effort and expense of using "real" Field Notebooks
- You won't have – or take – the time to rewrite all your notes, so DO IT RIGHT THE FIRST TIME!!!
- At Field Camp you will not be permitted to rewrite your "Section" notes because they will be turned in as you come from the field each evening

DRAWING YOUR SECTIONS

- PLAN your drawing layout before you begin
- LIST all the parts of the drawing you must include – Litho and Paleo Legends, Title Box (and EVERYTHING required to go into it), Start Column, Descriptions, Measurements and Totals, Location Map (for anyone unfamiliar with the area), etc.
- Determine WHERE and WHAT SIZE each will be placed on the drawing
- Make everything LARGE ENOUGH to be seen and read easily
- PRINT LEGIBLY – as though you were a Professional instead of a student just trying to get the project done and turned in
- Letter – lightly – in PENCIL first and then go back over it with ink
- ERASE the pencil marks when you're finished
- Use different size LETTERING PENS as necessary to make the drawings look like drawings rather than something just thrown together
- Carefully – and accurately – draw in the correct CONTACT for each bed – and include it in the description just in case
- Not everyone is an artist – but TRY to make your drawings look like you are
- Be CONSISTENT in your drawing, lettering, spacing ...
- Do NOT include in your drawing extraneous or "cutesy" notations or sketches
- BE PROFESSIONAL. Remember, you are at the end of your education and in a few weeks will be able to call yourself a Geologist.

DON'T DESTROY THE OUTCROP! *– Despite whatever feelings of self-importance you may have, you are NOT the only person in the world.*