TECTONICS

OROGENIC BELTS

The rocks of the orogenic belts are classified according to: 1) the terminal orogeny (capital letters) with modifications (') if also affected by other minor orogenies, and 2) the tectonic environment of major lithological assemblages (lower case letters). The geological age of the assemblages is given in the legend by standard symbols in brackets. The symbols for the orogenies and geological age are shown in the inset geological time scale.

CORDILLERAN	INNUITIAN	APPALACHIAN	GRENVILLE	CHURCHILL BEAR SOUTHERN	SUPERIOR SLAVE NUTAK
C-Columbian and Laramide C'-Columbian and older Mesozoic orogenies Ç-Columbian and Caribooan CE'-Columbian and Ellesmerian CR-Columbian and Racklan CH-Columbian and Hudsonian?	E-Ellesmerian E'-unnamed early Devonian Ē-Ellesmerian and earlier M-Melvillian Ɛ-Eurekan	A-Acadian A'-Acadian and Taconian and/or earlier Ā-Acadian and/or Avalonian M-Maritime	G-Grenvillian GH-Grenvillian and Hudsonian GK-Grenvillian and Archean orogenies GE-Grenvillian and Elsonian	H-Hudsonian H'-early Hudsonian H-Hudsonian and/or older orogenies HK-Hudsonian and Archean orogenies E-Elsonian	K-Kenoran K̲-Kenoran and possibly older Archean orogenies

SUCCESSOR BASINS AND FOREDEEPS

Deformed and undeformed immature clastics derived from mountain belts and deposited in troughs along the mountain front (fd), or in basins and troughs within the mountain belt (sb); may also include carbonates, evaporites, craton derived clastics and volcanics.

Csb', Cfd' (K,T) Csb, Cfd (J,K)	Efd (T) Esb, ĒEsb (P, P, M) MEsb (P) Efd (D)	Asb, MAsb (M, P, P) Asb'(P) Afd (S,D) A'fd (O)			Hsb (A)

PERICRATONIC BELTS

Deformed and partly metamorphosed sedimentary and volcanic rocks deposited along the craton border on the continental shelf, slope and rise, or in troughs. (m) carbonates, evaporites, shale, siltstone, orthoquartzite; (m') m with immature clastics or glacial deposits; (m") m' with gabbro sills and volcanics; (mi) m with iron formation; (h) autochthonous monocline of m beneath or beyond deformation (f) shale, siltstone, greywacke, flysch, turbidite (vb) f with tholeiitic basalt flows and gabbro sills; (ub) ultrabasic sills.

Cm (P,T) Cm (H) Cm', Cmi (H) Cf (P) CEf (H,P) CRmf (H)	Em (P) Em'(H,C) E'm (C,O,S) Ef (C,O,S,D)	Am (C,O) A'm (C,O) A'm' Ā m' (H) A'f, Af (CO) A'vb (C,O) Aub (O)	Gh (N) GHh (A) Gm", Gm (N,P) (A)	Hh, H'h (A) Hm, Hmi, Hmf, Hmif (A) H'm, H'm' (A) Hf, H'f (A) Hvb (A) Hub (A)

SUBOCEANIC VOLCANIC BELTS

Deformed and metamorphosed volcanic and sedimentary rocks accumulated in suboceanic basins and volcanic arcs; may include oceanic crust. (v) basic to acidic volcanic flows and pyroclastics with gabbro and ultrabasic sills and subvolcanic plutons; (s) shale, siltstone, greywacke, flysch, turbidite, chert, iron formation, carbonates; (vr) acidic volcanics and immature clastics; (o) ophiolite sequence; (ub) ultrabasic sills.

Cvs (S,J) C'vs (P,P) Çvs (D,C) Cub (S,J) C'ub (P,P) Çub (D,C)	Evs (O,S,D) Eub (O)	Avs (O,S,D) Avr (S,D) A'vs (C,O) Āvs (H) Ao, Aub (H)		Hvs (A)	Kvs, Kv (A) Kub

PLUTONIC BELTS

Intensely deformed and metamorphosed sedimentary and volcanic rocks and granitic intrusions forming the core zone of orogenic belts. (n) schist and gneiss; (gn) migmatic and granitic gneiss, including undifferentiated older and younger rocks; (nh) granulites; (g) granite, including plutons in other belts; (y) syenite and mangerite; (a) anorthosite and gabbro.

Cg (M,T) CEg (D) CRg (H) C'gn (P, M,T) C'n (P,M) Çn (H,H,P) Çgn (H)	Eg (D) Ēn (H)	Ag (D) A'g (O) Āg (H) An (C,O,S,D) A'n (H,C?) Ān (H?)	Gg,Gy (N) Gn (H,P)	Ey, Eg (P) Ea (P) Hg, H'g (A) Hgn, H'gn (A) Hnh (A) Hn, H'n (A)	Kg (A) Kgn (A) Kn (A) K̲g (A) K̲gn (A) K̲a (A) K̲nh (A)

BASEMENT

Deformed and/or isotopic age modified crystalline rocks forming sialic continental crust beneath younger sedimentary and volcanic sequences (lithological assemblages designated as above).

CHgn (A?)	AGgn (H or older)	GEy (P) GEa (P) G̲g (H or older) G̲gn (H or older) GHgn (A) GHn (A) GKg (A) GKgn (A) GKnh (A) GKvs (A)	H̲g (A or A) H̲gn (A or A) H̲n (A or A) H̲nh (A or A) H̲a (A or A) HKg (A) HKgn (A) HKn (A) HKnh (A) HKvs (A) H̲vs (A or A)	K̲gn (A)

CRATONIC REGIONS

The rocks of the cratonic regions are designated according to the geological age of their accumulation (capital letters) and major lithological assemblage (lower case letters).

PLATFORMAL DEPOSITS

Flat-lying or little deformed cover

Indigenous Deposits: (i) limestone, dolomite, salt, gypsum deposited in situ on cratons.

Di, SDi — Oi, OSi, COi, COSi — Hi, Pi, Hi, Ai

Clastic Deposits: (q) orthoquartzite, shale, conglomerate derived from cratons and deposited on the craton; (q') includes immature clastics and glacial deposits.

Kq, Jq, Dq, Cq, Hq, Pq, Hq, Aq, Aq', Pq

Exogeosynclinal Deposits: (e) shale, siltstone, sandstone, conglomerate derived from orogenic belts and deposited on the craton (names of orogenic events given in brackets).

Te (Laramide) — Ke (Columbian, Laramide) — De (Acadian, Ellesmerian) — Oe Taconian

PLATFORMAL IGNEOUS ROCKS

Volcanic Rocks: (vt) tholeiitic basalt extruded on cratons and partly stabilized orogenic belts

Tvt, Kvt, Hvt, Nvt — volcano

Hypabyssal Basic and Ultrabasic Intrusions: (b) gabbroic sills and (d) dykes intrusive into cratonic cover, basement and stabilized orogenic belts; (bh) norite; (ub) ultrabasic

Hb, Nb, Nub, Ab, Abh — Kd, Td, Hd, Hd, Ad

Hypabyssal Alkaline Intrusions:
*carbonatite, syenite, alkaline gabbro pipe

TAPHROGENIC DEPOSITS

(t) immature clastics deposited in fault bounded trough
(tb) with tholeiitic basalt flows and gabbro sills
(ta) with acidic and porphyritic volcanics

Tt, Ht, Ht — Ttb, Ttb, Ntb, Atb — KTta, Jta, Pta, Ata, Ata

Sediments (CSs) and volcanics (CSv) on the coastal plains and the continental shelves and slopes bordering the present continental mass.

CONTINENTAL SHELVES

underwater

GEOLOGICAL TIME SCALES

TIME SCALE DISTORTED FOR LEGIBILITY

Million Years	PHANEROZOIC OROGENIES	PERIOD		ERA	EON
.007		Recent	Quaternary Q	CENOZOIC C	PHANEROZOIC
2.5		Pleistocene			
65	Eurekan Ɛ, Laramide C	TERTIARY T			
135	Columbian C	CRETACEOUS K		MESOZOIC M	
195	Nassian	JURASSIC J			
225	Inklinian C'	TRIASSIC Ṯ			
280	Tahltanian C'	PERMIAN P		PALEOZOIC P	
320	Melvillian M	PENNSYLVANIAN	PO		
345	Maritime M	MISSISSIPPIAN	CARBONIFEROUS C		
395	Ellesmerian E, Caribooan Ç, Acadian A	DEVONIAN D			
440		SILURIAN S			
500		ORDOVICIAN O			
570	Taconian A'	CAMBRIAN Ꞓ			

Million Years	PRECAMBRIAN OROGENIES	SUB-ERA	ERA	EON
			CENOZOIC Ꞓ	PHANEROZOIC
			MESOZOIC M	
	For Phanerozoic orogenies see adjacent time scale		PALEOZOIC P	
500				
	Avalonian Ā, Racklan R		HADRYNIAN H	PROTEROZOIC P
1000	Grenvillian G	NEOHELIKIAN N		
1500	Elsonian E	PALEOMELIKIAN Ā, P	HELIKIAN H	
2000	Hudsonian H, H̲, H'		APHEBIAN A	
2500	Kenoran K, K̲			ARCHEAN A
3000				
3500				
4000				
4500				

- Geological contact (underwater shown by pecked line)
- Fault (underwater shown by pecked line)
- Transcurrent fault (dextral, sinistral)
- Normal fault (hachures on hanging wall)
- Thrust fault (teeth on hanging wall)
- Limit of folding
- Limit of metamorphism
- Gneissic trend
- Volcanic rocks
- Non-marine sedimentary rocks (partly or entirely)
- Gypsum diapir
- Caldera
- 500 Bathymetric contour (Depth in meters)
- Glacier, ice cap, ice field

Prepared by R.J.W. Douglas, Geological Survey of Canada, 1972

Lambert Conformal Conic Projection Standard Parallels 49°N. and 77°N.

Scale 1:15,000,000 or One Inch to 236.74 Miles

100 0 100 200 300 400 Miles

100 0 100 200 300 400 500 600 Kilometres