GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES

SEDIMENTARY AND VOLCANIC ROCKS

ASSEMBLAGE NAME	Symbol	Name	ASSEMBLAGE LITHOLOGY	INSULAR - ST. ELIAS BELT	COAST - CASCADES BELT	INTERMONTANE BELT	OMINECA BELT	MACKENZIE AND ROCKY MOUNTAINS BELT	INTERIOR PLATFORM AND ARCTIC SHELF BELT
MIOCENE-RECENT	TQs	SOOKE-YAKATAGA	mudstone, fine sandstone, conglomerate; marine and non-marine	MR sediments on continental shelf (Fr, Sk), M Clallam (Fr), OM Sooke (Fr), TQ Yakataga (Is, McM)					
TERTIARY AND QUATERNARY	TQw	WRANGELL-GARIBALDI	basic to intermediate volcanics, with minor acid phases	Q Edgecumbe (Is), TQ Tlevak, Tow Hill (Sk), Wrangell (McM)	TQ Ketchikan (Sk), TQ Garibaldi, Mt. Baker, Glacier Peak, Silverthrone (Fr)	RQ Aiyansh (Sk), Miles Canyon (McM), TQ Heart Pks., Level Mtn., Tuya (Is), Selkirk (McM)	TQ Tuya (Is)		
MIOCENE-PLIOCENE	TPB	PLATEAU BASALT	olivine basalt, intermediate volcanics, related breccias and tuffs; minor sediments; non-marine	unnamed volcanics (Fr)	unnamed volcanics (Pa)	M Deadman R., MP Chilcotin (Pa)	unnamed volcanics (Pa)		
EOCENE-OLIGOCENE	Tc	CARMANAH-TWIN RIVER	shale, conglomerate, sandstone; marine	O Twin R. (Fr), E Lyre, Aldwell (Fr), marine sediments on continental shelf, EO Carmanah, Hesquiat (Fr)					
PALEOCENE-EOCENE	TM	METCHOSIN-CRESCENT	basalt, tuff, local gabbro; marine	E Crescent, Metchosin (Fr)					
PALEOCENE-OLIGOCENE	TP	PASKAPOO-CYPRESS HILLS	sandstone, shale, conglomerate					T Paskapoo (Ko), P Porcupine Hills (Ko), Tertiary Hills (GB)	P Porcupine Hills (Ko), Ravenscrag (Ko, SS), O Cypress Hills (Ko, SS), uT Beaufort (Fi), KT Reindeer, Eureka Sound (Fi), T Paskapoo (Ko, At)
UPPER CRETACEOUS-OLIGOCENE	TB	BROTHERS PEAK	sandstone, shale, conglomerate, coal, acid tuff	P Haydon Pk., Orca (McM), O Poul Cr. (McM), OM Topsy, Cenotaph (Is), PE Kulthieth (McM), uT Skonun (Sk), T Kootznahoo (Is)		E Brothers Pk. (Is, Be), Coldwater (Fr), EO Sophie Mtn. (Ko), KT Sifton (Pa)	EO Sophie Mtn. (Ko), KT Sifton (Pa)	EO Kishenehn (Ko)	
UPPER CRETACEOUS-OLIGOCENE	KTo	OOTSA LAKE-KAMLOOPS	intermediate to acidic volcanic flows, tuff; non-marine	PE Masset (Sk), EO Admiralty Is. (Is)	O Coquihalla, Hannegan, Skagit (Fr), E Barlow Pass (Fr), uT Bella Bella (Sk)	OM Endako (Pa), E Skukum, Sloko (Is, McM), E Princeton, Tranquille (Fr), Carmacks, Mt. Nansen (Is, McM), EO Klondike Mtn., Marron, O'Brien Cr., Sanpoil (Ko), Kamloops (Fr, Ko, Pa), lT Donjek (McM), T Casino (McM), KT Ootsa Lake (Pa)	EO Kamloops, Kettle R., Klondike Mtn., O'Brien Cr., Phoenix, Sanpoil (Ko)		
UPPER CRETACEOUS-OLIGOCENE	KTN	NANAIMO-CHUCKANUT	sandstone, conglomerate, argillite; marine and non-marine	uK Nanaimo (Fr)	E Huntington (Fr), P Pipestem Canyon (Fr), KT Burrard, Chuckanut, Kitsilano (Fr)				
UPPER CRETACEOUS	KA	ALBERTA-SMOKY	sandstone, shale					uK Dunvegan, Wapiti (At, Pa, Re), Alberta, Bearpaw, Belly R., Brazeau, Edmonton (At, Ko), Smoky (At, Pa), Kneehills, La Biche, Lea Park (At), Kootenai, Milk R., St. Mary R., Willow Cr. (Ko), Monster (Pe, Re), Kotaneelee (Re), Sharp Mtn., Bonnet Plume (Pe), Boundary Cr., Moose Channel, Tent Is. (Fi, Pe), Amundsen Gulf, Kanguk (Fi), Little Bear, East Fork, MacKay (GB), K Upper Ft. St. John (Pa)	uK Bearpaw (At, Ko, SS), Dunvegan (At, Be, Ha), Wapiti (At, Be, Ha, Re), Lea Park (At, SS), Battle, Eastend, Foremost, Frenchman, Oldman, White Mud (Ko, SS), Belly R., Brazeau, Edmonton (At, Ko), Kotaneelee (Be, Re), La Biche, Smoky (At, Ha), Alberta, Kneehills (At), Blood Reserve, Horse Shoe Canyon, Kootenai, Milk R., Pakowki, St. Mary R., Willow Cr. (Ko), Bad Heart, Kaskapau, Puskwaskaw, Shaftesbury (Ha), Amundsen Gulf, Boundary Cr., Tent Is., Kanguk (Fi), K Deerpass Bay (GB), Trevor (Pe)
CRETACEOUS	KK	KINGSVALE-GAMBIER	varicoloured intermediate and acidic volcanics; lesser basalt; minor sediments		uK Kingsvale (Fr), lK Cheakamus, Gambier, Helm Eurydice, Taylor Cr., Styx, Peninsula, Brokenback Hill, Fire Lake (Fr)	uK Kingsvale (Fr), Kasalka (Pa), K Spences Bridge (Fr), Brian Boru (Pa) Hutshi (McM)	K South Fork (McM)		
CRETACEOUS	KJ	JACKASS MOUNTAIN-SKEENA	sandstone, conglomerate, argillite; marine and non-marine	lK Kennecott (McM), Haida, Honna (Sk), K Moonshine Cr. (McM), Queen Charlotte (Sk)	uK Midnight Pk., Ventura, Virginia Ridge, Winthrop (Fr), lK Harts Pass, Jackass Mtn., Panther Cr., Pasayten, Taylor Cr. (Fr), Skeena (Sk)	uK Tango Cr. (Be, Is, Pa), lK Jackass Mtn. (Fr), K Red Rose, Skeena (Pa), KT Sustut (Pa)			
JURASSIC-CRETACEOUS	JKP	PACIFIC RIM-YAKATAT	greywacke, argillite, chert, basalt; marine	JK Leech R., Pacific Rim (Fr), Sitka (Is), Valdez (McM), Yakutat (Is, McM)					
UPPER JURASSIC-LOWER CRETACEOUS	JKK	KOOTENAY-BLAIRMORE	sandstone, siltstone, mudstone, coal, conglomerate					lK Blairmore (At, Ko, Pa), Ft. St. John, Garbutt, Lepine, Scatter, Sikanni, Sully (Be, Re), Arctic Red, Sans Sault (GB, Pe), Grand Rapids, Joli Fou, Pelican, Shaftesbury (At), Bullhead, Buckinghorse (Be), Christopher, Darnley Bay, Hassel, Isachsen (Fi), Crowsnest (Ko), Uslika (Pa), Keno Hill (McM, Pe), K Slater R., Trevor (GB), JK Kootenay, Nikanassin (At, Ko), Minnes (Be, Pa)	lK Ft. St. John, Garbutt, Lepine, Scatter (Be, Re), Grand Rapids, Pelican, Joli Fou (At, Ha), Shaftesbury, Blairmore (At), Buckinghorse, Bullhead, Sikanni, Sully (Be), Alice Cr., Clearwater, Loon R., Peace R., McMurray (Ha), Christopher, Darnley Bay, Hassel, Isachsen (Fi), Arctic Red, Sans Sault (Pe), Langdon Bay, Wolverine Cr. (GB), K Trevor (GB), JK Kootenay, Nikanassin (At, Ko, Pa), Minnes (Be)
MIDDLE JURASSIC-LOWER CRETACEOUS	JB	BOWSER-DEWDNEY	siltstone, greywacke, shale, conglomerate, coal; marine and non-marine	uJlK Gravina - Nutzotin (Is, McM), lK Longarm (Sk), JK Dezadeash, Kluane Schist (McM), Douglas Is., Seymour Canal (Is)	lK Brew (Fr), uJ Agassiz Prairie, Kent, Dewdney Cr. (Fr), mJ Billhook Cr., Mysterious Cr. (Fr), JK Dezadeash (McM), Newby, Nooksack, Relay Mtn. (Fr)	uJ Bowser Lake (Be, Pa, Sk, Is), JK Relay Mtn. (Fr), Dezadeash (Is, McM), Tantalus (McM)			
LOWER AND MIDDLE JURASSIC	JL	LABERGE-QUESNEL	greywacke, argillite, conglomerate; marine			J Inklin, Takwahoni (Is), Laberge (Is, McM), Quesnel R. (Pa)			
LOWER AND MIDDLE JURASSIC	JH	HAZELTON-BONANZA	intermediate flows, tuffs, local basalt, rhyolite, sandstone, argillite; marine and non-marine	uJ Root Glacier (McM), mJ Nizina Mtn. (McM), Yakoun (Sk), lJ Bonanza, Harbledown (Fr), Kunga, Maude (Sk), Lubbe Cr. (McM)	mJ Echo Is., Harrison Lake, Wells Cr. (Fr), lmJ Ladner, Jack Mtn., Tyaughton (Fr), Hazelton (Fr, Pa, Sk), Bowen Is. (Fr), lJ Cultus (Fr)	lmJ Hazelton (Be, Is, Pa, Sk), Toodoggone (Be)	lmJ Hall (Ko)		
UPPER TRIASSIC-LOWER JURASSIC	ŦJT	TAKLA-NICOLA	augite porphyry, basaltic volcanics; siltstone, shale, limestone, conglomerate			uŦlJ Nicola (Fr, Ko, Pa), Quesnel R. (Pa), uŦ Lewes R. (McM), Sinwa, Stuhini (Is), uŦlJ Takla (Be, Is, Pa), Nazcha, Shonektow (Is)	uŦlJ Nicola (Ko), J Archibald, Elise, Rossland (Ko)		
UPPER TRIASSIC-LOWER JURASSIC	ŦJs	SLOCAN-KING SALMON	shale, argillite, limestone, conglomerate schist, sandstone		ŦJ Cultus (Fr)	uŦlJ Nicola (Ko), uŦ King Salmon (Is), ŦJ Sicamous, Slocan, Ymir (Ko), Takla (Pa)	uŦlJ Nicola (Ko), ŦJ Sicamous, Slocan, Ymir (Ko), Takla (Pa)		
UPPER TRIASSIC	ŦK	KARMUTSEN-NIKOLAI	basalt, limestone, argillite; marine and non-marine	uŦ Haro, Parson Bay, Quatsino (Fr), Chitistone, McCarthy, Nikolai, Nizina (McM), Karmutsen (Fr, Sk), Ŧ Goon Dip, Pinnacle Pk., Whitestripe (Is), Kunga (Sk)	uŦ Cadwallader, Charon, Hurley, Pioneer, Tyaughton (Fr), Karmutsen (Fr, Sk), Quatsino (Fr)				
MISSISSIPPIAN- TRIASSIC	PŦT	THOMPSON	acidic to intermediate volcaniclastics, chert, argillite, limestone, local basalt and acid volcanics; marine			PŦ Cache Creek, Chapperon, Kobau (Ko), Thompson (Fr, Ko)	P Anarchist, Churchill, Covada, Mt. Roberts (Ko)		
	PŦK	KLONDIKE-OBLIQUE	muscovite-quartz schist, amphibolite; minor sediments				C Englishman's (McM), M Kalzas (McM), CP Klondike Schist (McM)		
MISSISSIPPIAN-TRIASSIC	MŦC	CACHE CREEK-ANVIL RANGE	chert, argillite, carbonate, basalt, associated diabase, gabbro, alpine ultramafics; marine		Ŧ Bridge R., Hozameen (Fr), PJ Darrington, Shuksan (Fr)	uP Marble Canyon (Fr), P French Range (Is), M Nakina (Is), PŦ Cache Creek (Fr, Be, Ko, Pa), CP Kedahda, Horsefeed (McM, Is), PŦ Pavilion (Fr)	PP Anvil Range (McM)		
DEVONIAN-TRIASSIC	MŦs	SLIDE MOUNTAIN-SYLVESTER	upper: basalt, diabase, local gabbro, alpine ultramafics; marine lower: chert, argillite, sandstone, conglomerate, limestone				uM Nizi (Is), P Antler (Ko), M Milford, Flagstaff Mtn. (Ko), PŦ Kaslo, Tsalkom (Ko), PP Lay Range (Be), DP Guyet (Ko), Slide Mtn. (Ko, Pa), DM Sylvester (Is, McM), Fennell (Fr, Ko)		
MISSISSIPPIAN-TRIASSIC	PPc	CHILLIWACK	argillite, volcanic sandstone, tuff, basalt, dacite, carbonate; marine		CP Chilliwack, (DŦ in Washington) (Fr)				
PENNSYLVANIAN-PERMIAN	PPs	SICKER-SKOLAI	upper: argillite, sandstone, limestone, marine lower: basic to acidic volcanics	D?P Sicker, West Coast (Fr), P Skolai (McM), PP Buttle Lake (Fr)					
MISSISSIPPIAN-TRIASSIC	MPs	STIKINE - ASITKA	basalt, andesite, rhyolite, tuff, carbonate, argillite, chert; marine and locally (?) non-marine		PP Gamsby (Pa), unnamed (Pa, Sk)	lP Asitka (Be), MmŦ unnamed (Is, Sk, Pa)			
DEVONIAN - JURASSIC	DJF	FRONT RANGES	carbonate, shale, sandstone					J Fernie (At, Be, Ko, Pa), Lower Schist, Bug Cr. (Pe), JlK Kingak (Fi, Pe), Mould Bay, Wilkie Pt. (Fi), Husky, North Branch (Pe), mŦ Liard (Be), muŦ Ludington-Pardonet (Be), lmŦ Toad (Be), lŦ Grayling (Be), Ŧ Spray R. (At, Ko, Pa), P Fantasque (Be, Re), Kindle (Be), Jungle Cr., Tahkandit (Pe), PP Rocky Mtn. (At, Ko), M Rundle (At, Be, Ko, Pa), Banff (At, Ko, Pa), Mattson (Be, Re), Prophet (Be), Etherington, Exshaw, Hannan, Livingstone, Mt. Head (At, Ko), Clausen, Flett, Yohin (Re), Ishbel (Pa), C Lisburne (Fi, Pe), Alapah, Ettrain, Hart R., Kayak, Kekiktuk, Wahoo (Pe), CP Klondike Schist (Pe), CŦ Sadlerochit, Shublik (Fi, Pe), Endicott (Fi), uD Fairholme, Alexo, Palliser (At, Ko, Pa), Perdrix (Pa), Melville Is. (Fi), Ft. Simpson (Re), muD Canol, Imperial (Fi, GB, McM, Pe), Hare Indian (GB, Pe), Kee Scarp, Ramparts (GB), mD Horn R. (Re), uDM Besa R. (Be, Pa, Pe, Re)	JK Kingak, Mould Bay, Wilkie Pt. (Fi), M Flett, Mattson (Re), uD Grosmont, Hay R., Ireton, Mikkwa, Waterways (Ha), Melville Is. (Fi), Ft. Simpson (Re), muD Canol, Imperial (Fi, GB, Pe), Slave Pt. (Ha), Hare Indian, Kee Scarp (GB, Pe), mD Chinchaga, Keg R., Muskeg, Nyarling (Ha), Horn R. (Re), Hume (Pe)
UPPER PALEOZOIC - TRIASSIC	PŦT	TAKU	acid to basic volcanics, argillite greywacke, limestone, conglomerate		PŦ Taku Terrane (Is)				
DEVONIAN - MISSISSIPPIAN	DME	EARN-BLACK CLASTIC	sandstone, shale, pebble conglomerate					M Black Clastic, Crystal Pk. (McM), DM Earn (McM)	
CAMBRIAN - DEVONIAN	ЄDM	MAIN RANGES	carbonate, shale				mD McDame (Is), lS Sandpile (Is), Є Dome Cr. (Pa), lOD Black Stuart (Pa), OD Nasina Quartzite (McM), ЄD Kechika (Be, McM)	muD Hare Indian (Fi, Pe), Ramparts (Pe), mD Hume (Fi, GB, Pe), Headless, Nahanni (McM, Pe, Re), Funeral, Natla, Grizzly Bear (McM, Re), Cranswick, Ogilvie (Pe), Great Bear (Fi, Pe), Pine Pt., Flume (Pa), Manetoe (Re), lmD Dunedin (Be), Arnica, Landry (GB, McM, Pe, Re), lD Michelle (Pe), Bear Rock (GB, Pe), Wokkpash (Be), D Stone (Be, Pa), Camsell (GB, McM, Pe, Re), Cedared, Harrogate, Mt. Forster, Starbird (Ko), Sombre (McM, Pe, Re), lS Nonda (Be, Pa, Re), Sandpile (Be), SD Gossage (Fi, Pe), Muncho-McConnell (Be, Pa), Delorme (GB, McM, Pe, Re), mO Sunblood (Re), O Glenogle (Ko), Outram, Mt. Wilson, Owen Cr., Skoki, Survey Pk. (At, Ko), Monkman (Pa), OS Mt. Kindle (Fi, GB, Pe, Re), Beaverfoot (At, Ko, Pa), Upper Kechika (McM), Whittaker (McM, Re), uЄ Canyon Cr., Chancellor, Jubilee, Ottertail (Ko), Lynx (At, Ko, Pa), mЄ Arctomys (At, Ko, Pa), Cathedral, Eldon, Mt. Whyte, Pika, Stephen (At, Ko), mЄ Avalanche, Rockslide (Re), Є Saline R. (Fi, Pe), uЄO McKay (Ko), Chushina (Pa), mЄO Dome Cr., Hotah-Adolphus, Skoli, Tatei-Chetang, Waterfowl (Pa), ЄO Franklin Mtn. (Fi, GB, Pe, Re), Broken Skull, Rabbitkettle (Be, McM), Harvey (McM), Kechika (Be, McM), ЄD Road R. (Be, Fi, McM, Pe, Re), Vunta (Fi, Pe), Katakturuk, Mt. Cap, Nanook, Old Fort Is. (Fi)	muD Hare Indian (Fi, Pe), Ramparts (Pe), mD Nahanni (Re), Hume (Fi, GB, Pe), lmD Bear Rock (Fi, GB, Pe, Re), SD Gossage (Fi), OS Mt. Kindle (Fi, GB, Pe), Є Saline R. (Fi), ЄO Franklin Mtn. (Fi, GB, Pe), ЄD Katakturuk, Mt. Cap, Nanook, Old Fort Is., Road R., Vunta (Fi)
CAMBRIAN - MISSISSIPPIAN	ЄML	LARDEAU	argillite, limestone, schist, phyllite, greenstone				lP Active, Broadview, Eagle Bay, Lardeau, Metaline, Nelway (Ko)		
PROTEROZOIC - TRIASSIC	PŦA	ALEXANDER	sandstone, argillite, limestone, basic to acidic volcanics, conglomerate; marine, locally non-marine	uŦ Cornwallis, Hamilton, Hound Is., Hyd, Keku (Is), C Klawak, Ladrones, Peratrovich (Sk), Saginaw Bay (Is), Iyoukeen (Is), lP Cannery, Halleck, Pybus (Is), uD Freshwater Bay (Is), muD Cedar Cove (Is), mD Black Cap (Is), D Coronados, Karheen, Port Refugio, St. Joseph Is., Wadleigh (Sk), Hood Bay, Gambier Bay, Retreat (Is), uS Kuiu (Is), S Hecate (Is, Sk), Bay of Pillars, Pt. Augusta, Tidal (Is), PŦ Barlow Cove (Is), OS Descon (Is, Sk), SD Kennel Cr., Willoughby, Rendu (Is), ЄP Kaskawulsh (McM), P Wales (Sk)	PP unnamed (Sk)				
PROTEROZOIC - CAMBRIAN	PЄG	GOG - HAMILL	sandstone, siltstone, shale, pebble conglomerate				Є Atan (Be, McM), Badshot, Donald, Eager, Laib, Mohican, Quartzite Range, Reno (At, Ko), Dome Cr., Mahto, Mural (Pa), Hamill (At, Ko), Harvey (McM), Є Midas, Yanks Pk. (Pa)	lЄ Backbone Ranges, Sekwi (McM, Pe, Re), Gog (At, Ko), Jones Ridge (Pe), Mahto, McNaughton, Mural (Pa)	
PROTEROZOIC - PALEOZOIC	PP	CENTRAL GNEISS - SKAGIT	granitoid gneiss, migmatite, schist, amphibolite, plutonic rocks, minor other lithologies; includes some PŦA	lmP Colquitz, Turtleback, Wark (Fr)	P Cascade R., Leecher, Methow, Skagit (Fr), PP Yellow Aster, Custer, Swakane, Twin Island (Fr), Central Gneiss (Fr, Is, Sk), P Gamsby (Pa)	PP unnamed (Fr)			
PROTEROZOIC	Pw	WINDERMERE	sandstone, siltstone, shale, diamictite, limestone, basalt, iron formation, pebble conglomerate				P Cunningham, Isaac, Yankee Belle, Kaza (Pa), Espee, Stelkuz, Swannell, Tsaydiz (Is, Be), Horsethief Cr., Irene, Leola, Monk, Shedroof, Toby (At, Ko), Ingenika (Be, Pa), Windermere (At)	P Keele, Rapitan, Sheepbed (McM, Pe, Re), Byng (Pa), Miette (At, Ko, Pa), Windermere (At, Pa), Nasina, Grit Unit (Pe), Misinchinka (Be), Tindir (Fi, Pe)	
	PP_1	MACKENZIE - MUSKWA	quartzite, shale, basic lavas, carbonate, conglomerate					P Tsezotene (Pe, Re), Katherine (Pe), Little Dal (McM, Pe, Re), Coppercap, Redstone R, Tigonankweine (Re); Aida, Chischa, Gataga, George, Henry Cr., Tetsa, Tuchodi (Be)	P Glenelg, Shaler (Fi), Hornby Bay (GB)
	PP_2	PINGUICULA	basalt, tuff, argillite, limestone stromatolitic biostromes, shale, dolomite					P Pinguicula (Pe)	
	PP	PURCELL-WERNECKE	phyllite, slate, siltstone, sandstone, dolomite, argillite				P Aldridge, Altyn, Appekuny, Belt-Purcell, Creston, Dutch Cr., Ft. Steele, Gateway, Grinnell, Helena, Kitchener, Missoula, Mt. Nelson, Phillips, Priest R., Pritchard, Purcell, Ravalli, Roosville, Sheppard, Siyeh, Waterton, Wallace, Werner Pk. (Ko)	P Neruokpuk, Tindir (Fi, Pe), Belt-Purcell (Ko), Purcell (Ko, Pa), Aldridge, Appekuny, Altyn, Creston, Dutch Cr., Ft. Steele, Gateway, Grinnell, Helena, Kitchener, Missoula, Mt. Nelson, Phillips, Priest R., Ravalli, Sheppard, Siyeh, Roosville, Wallace, Waterton, Werner Pk. (Ko), Gillespie Lake, Fairchild, Quartet Lakes (Pe)	
ARCHEAN-PALEOZOIC	gns	SHUSWAP	gneiss, schist, pegmatite, granitoid rocks, quartzite, marble			P Okanagan (Ko)	P Okanagan (Ko), P Belt-Purcell (Ko), PP Wolverine (Pa), Shuswap (At, Ko)		
	gnc	CORE GNEISS	orthogneiss and paragneiss				AP Malton (At), Thor-Odin Dome, Frenchman Cap, Valhalla (Ko)		

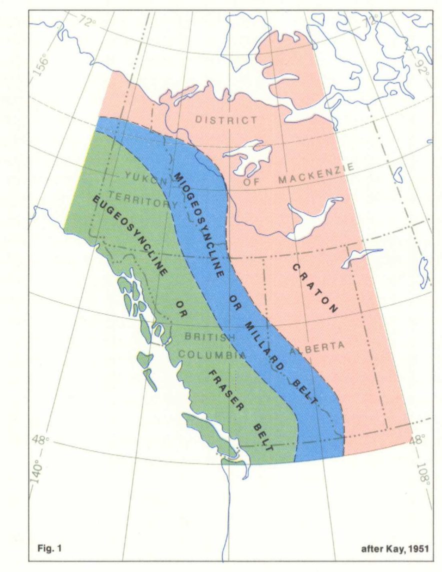


Fig. 1 — after Kay, 1951

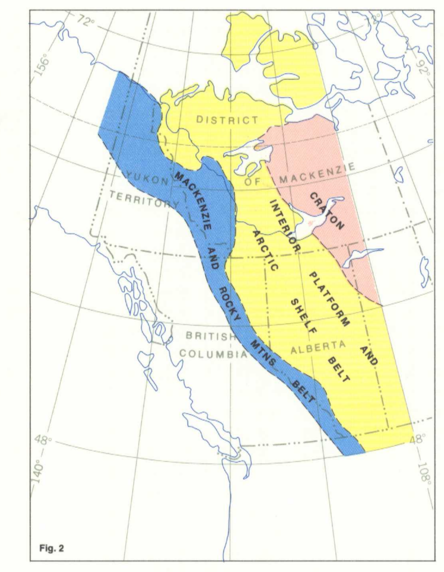


Fig. 2

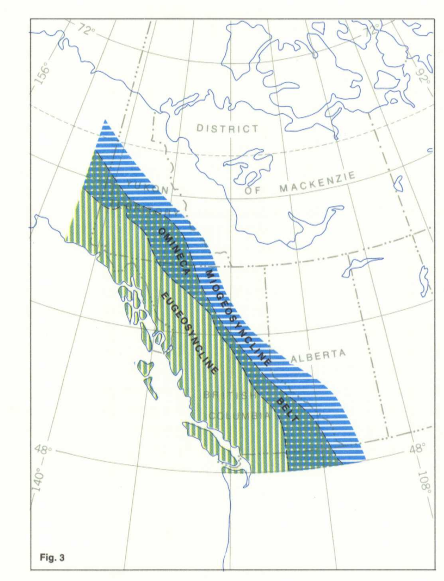


Fig. 3

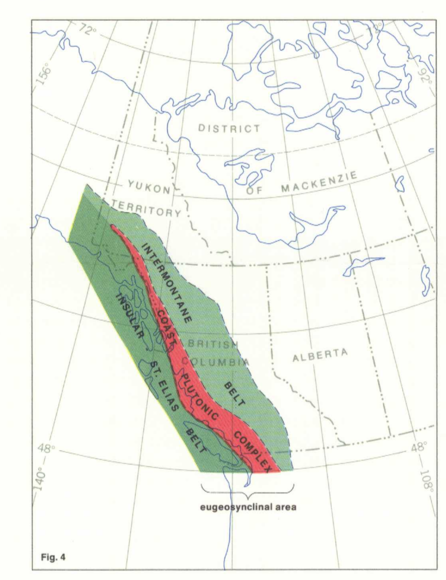
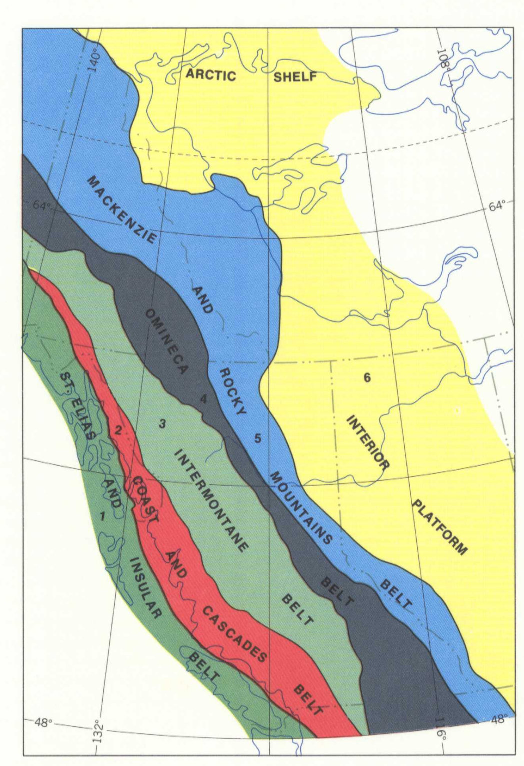


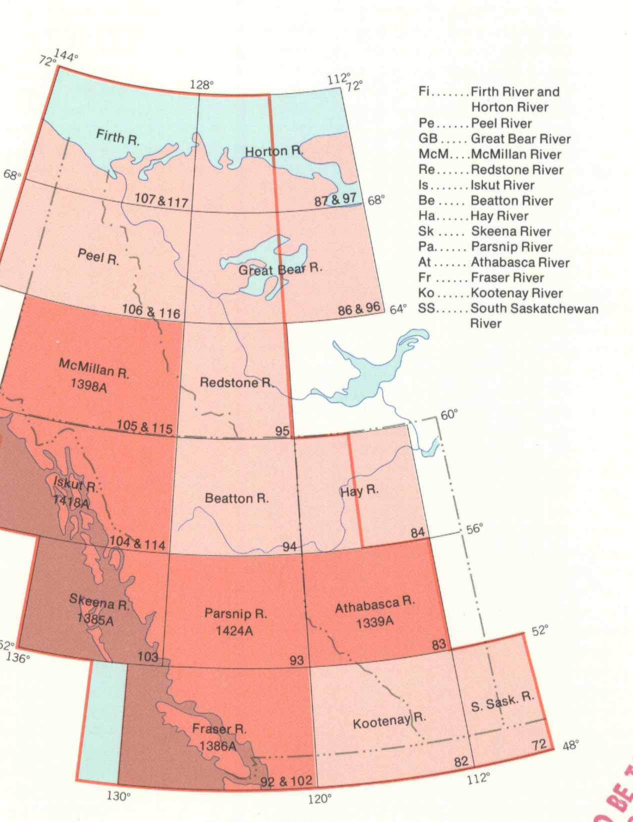
Fig. 4

PLUTONIC AND ULTRAMAFIC ROCKS

AGE AND LITHOLOGY	Symbol	Lithology	INSULAR - ST. ELIAS BELT	COAST - CASCADES BELT	INTERMONTANE BELT	OMINECA BELT	MACKENZIE AND ROCKY MOUNTAINS BELT
LATE TERTIARY	LTg	granite, quartz monzonite, granodiorite quartz diorite	M Burwash Cr. (McM), unnamed (McM, Is)	M Chilliwack, Salal Cr., Cascade Pass, Franklin Glacier, Cloudy Pass (Fr), O Gem (Fr), OM Perry Cr. (Fr)			
	LTd	syenite, granite		M King Is. (Sk)			
LATE CRETACEOUS AND EARLY TERTIARY	KTq	granite, quartz monzonite; lesser granodiorite			E Nisling Range Alaskite (McM), Nanika, Kastberg (Pa), LKT Glundebery (Is)		
	KTg	granodiorite, quartz diorite, quartz monzodiorite; lesser quartz monzonite, diorite, monzonite	EO Catface Intrusions (Fr), unnamed (Sk), LKT unnamed (McM, Is)	E Golden Horn, Yale (Fr), unnamed (Fr, Is, McM, Pa, Sk), ET Bendor (Fr), unnamed (Fr, Is, Sk), LK Black Pk. (Fr), unnamed (Fr, Is, McM, Sk)	E Babine (Pa), LK Bulkley (Pa), LKT unnamed (Fr, Be, Is, Sk)	KT unnamed (Ko)	
	KTd	diorite, gabbro, syenite, monzonite; lesser quartz diorite to granite	E Sooke gabbro (Fr)		E Goosly Lake (Pa)	LT Coryell (Ko)	
EARLY AND MID-CRETACEOUS	EKq	quartz monzonite, granite, granodiorite; lesser quartz diorite, quartz monzodiorite	K unnamed (Fr, Is, McM)	EK Eldorado Orthogneiss, unnamed (Fr)	EK Mesilinka, Osilinka, Germansen (Pa), Nisling Range Granodiorite (McM)	K Coffee Cr., Glenlyon, Marker Lake, Quiet Lake, Seagull, Tatchun (McM), Cassiar (Is, McM)	K O'Grady, Anvil, Mt. Billings (McM), Hole-in-the-Wall, Skinboat, Coal R. (Re), unnamed (McM, Re)
	EKd	gabbro, minor norite, diorite			LK Axelgold, unnamed (Pa)		
MID-CRETACEOUS	⊙	Alaskan-type ultramafics; pyroxenite, gabbro, diorite, dunite	EK Blashke Is. (Is), Union Bay, Duke Is. (Sk), unnamed (McM)	EK Giant Mascot (Fr), unnamed (Sk)			
PALEOZOIC - EARLY TERTIARY	MTg	MTq quartz monzonite, granite; MTg granodiorite, quartz diorite; MTd diorite, gabbro, migmatite		E Ponder (Sk), unnamed (Fr, Is, McM, Pa, Sk), ET Bishop R. (Fr), unnamed (Fr, Pa, Sk), LK Mt. Gilbert, Spuzzum, Squamish (Fr), unnamed (Fr, Is, McM, Pa, Sk), JK Ecstall (Sk), unnamed (Fr, Is, McM, Pa, Sk), LŦ Ruby Range (McM), Marblemount (Fr), P Cloudburst, Pemberton Complex (Fr), unnamed (Fr, Is, McM, Pa, Sk)			
LATE JURASSIC AND EARLY CRETACEOUS	JKg	granodiorite, quartz diorite, diorite	JK unnamed (McM, Is)				
EARLY AND LATE JURASSIC	MJg	granodiorite, quartz diorite, quartz monzonite, diorite	EMJ Island Intrusions (Fr), unnamed (Sk, McM, Is)	MJ unnamed (Is)	MJ Albert Dease, MacNamara (Be), Hotailuh (Is), François Lake (Pa), Pennask (Fr), LMJ Similkameen, unnamed (Fr)	MJ Nelson, unnamed (Ko)	
	MJd	syenite, leuco-monzonite, leuco-quartz monzonite				MJ Kuskanax (Ko)	
LATE TRIASSIC-EARLY JURASSIC	EJg	quartz diorite, granodiorite; lesser diorite, quartz monzonite		EJ Texas Cr. (Is)	EJ Klotassin, Ruby Range (McM), Topley, Hogem Granodiorite (Pa), Guichon, Takomkane, Thuya (Fr), unnamed (Fr, Pa)		
	EJd	diorite, monzonite, syenite, quartz diorite; minor pyroxenite, granodiorite			EJ Copper Mtn., Iron Mask (Fr), Pitman, Thane (Be), Galore Cr., Hickman (Is), EMJ Duckling (Pa), LŦ Granite Mtn. (Pa), Hotailuh (Is)		
UPPER TRIASSIC-LOWER JURASSIC	⊕	Alaskan-type ultramafics: gabbro, pyroxenite, diorite			ŦJ Tulameen (Fr), Turnagain R. (Is), Polaris, Lunar Cr., Mesilinka complex, Wrede Cr. (Be)		
PENNSYLVANIAN-PERMIAN	PPg	quartz monzonite to diorite, syenodiorite, agmatite	PPg unnamed (Is, McM)				
LATE PALEOZOIC-TRIASSIC	(ultramafic symbol)	Alpine-type ultramafics: peridotite, serpentinite		Ŧ Bralorne (Fr), M Twin Sisters (Fr)	Ŧ Shulaps (Fr), LPŦ Cassiar, Nahlin (Is), Trembleur (Pa), unnamed (Be, Fr, Is, McM, Pa)	LPŦ unnamed (Ko)	
DEVONIAN	Dq	quartz monzonite, granite					D Old Crow, Mt. Fitton, Mt. Sedgwick (Pe)
MIDDLE-LATE PALEOZOIC	Py	Pg quartz monzonite to quartz diorite, monzonite, monzodiorite; minor gneiss, migmatite; Py syenite, ijolite, jacupiranjite, gneiss				Pg Adamant, unnamed (Ko)	MLPy Ice R., unnamed (Ko)
DEVONIAN	Dg	gneissic granitoid rocks	D Saltspring (Fr)			D Mt. Fowler, Clachnacudainn, unnamed (Ko, McM)	
ORDOVICIAN AND SILURIAN	OSg	quartz monzonite to quartz diorite; trondjhemite, hornblendite, pyroxenite, serpentinite	OS unnamed (Fr, Sk, McM)	OS Annette Is (Sk), unnamed (Is, Sk)			
PROTEROZOIC	Pg	granodiorite				P Hellroaring (Ko)	



INDEX MAP A
Geological Belts



INDEX MAP B
1:1 000 000 Geological Maps

Tectonic assemblages are the basic subdivisions of the map. Each includes, to varying degrees, a distinctive assemblage of rocks which reflects an unique environment or related environments of deposition or tectonic setting. They may include either one group or formation or many units and are not necessarily strictly coeval throughout. The assemblages are either bounded by unconformities, in which case relationships with other assemblages are fairly well known, or by major faults across which relationships may be unknown. Assemblages of plutonic rocks are defined mainly on age and subdivided on composition.

The six geological belts (Index Map A) are northwesterly trending regions each of which has a distinctive general similarity in physiography, stratigraphy, metamorphism, plutonism and structural development throughout much of the length of the Cordillera.

Many tectonic assemblages, particularly younger ones, cross the boundaries of the belts and add to the vagueness of their definition. As used herein, the geological belts are not strictly defined as tectonic belts. They are cumulative, the summation of all geological processes that have interacted through time to produce the present geological framework of the Cordillera.

In discussing North American geosynclines, Marshall Kay proposed an arrangement shown in Fig. 1 in which the craton was the stable source area forming the central mass of the continent, the miogeosyncline or Millard Belt was the subsiding sedimentary trough on the western flank, and the eugeosyncline or Fraser Belt was the belt of volcanic arcs and volcanogenic sediments farther west. This concept is in general still valid but needs some modifications to relate it to the six belts used here.

The craton is not generally considered as one of the belts of the Cordillera. It is, however, the eastern source for the sediments of the miogeosyncline and plays a crucial role in the evolution of the Cordillera. The extent to which it underlies the geosynclinal areas is debatable.

Miogeosynclinal sediments characterize the Mackenzie and Rocky Mountains Belt (Fig. 2) within which igneous and high-grade metamorphic rocks are the exception. Regional folding and thrusting are common, and for large segments, characteristic. Structural style varies along its length.

To the east of the Mackenzie and Rocky Mountains Belt, flanking the craton, is an area of gently deformed platformal or shelf sediments referred to herein as the Interior Platform and Arctic Shelf Belt (Index Map A, Belt 6; Figure 2).

The western Cordillera or Fraser Belt of Kay is characteristically a volcanic or eugeosynclinal regime. Along the eastern margin, the eugeosynclinal and miogeosynclinal strata interfinger to produce a zone or belt which, at any given time, was characteristically either miogeosynclinal or eugeosynclinal. Within the overlap area are areas of regionally metamorphosed rocks in places high-grade, and many scattered plutons. This zone is the Omineca Belt (Index Map A, Belt 4; Figure 3).

The eugeosynclinal part of the Cordillera is characterized by volcanic assemblages of various origins and largely volcanogenic sedimentary successor basins deformed by dominantly dextral transcurrent faults. Thus, assemblages of different origins and different environments, some clearly of oceanic derivation, have been tectonically juxtaposed into a mosaic of seemingly unrelated, mainly allochthonous blocks and slices.

The eugeosynclinal region has been divided into three belts by the emplacement of the Coast Plutonic Complex the major element of the Coast-Cascades Belt. (Index Map A, Belt 2; Fig. 4), distinguished by igneous and metamorphic rocks transecting older stratified rocks. Lying west of the Coast-Cascades Belt is the Insular-St. Elias Belt (Index Map A, Belt 1) and to the east is the Intermontane Belt (Index Map A, Belt 3; Fig. 4). The tectonic assemblages of the Insular - St. Elias Belt extend in many instances into the Coast-Cascades Belt as do the tectonic assemblages of the Intermontane Belt and if it were not for the more or less continuous belt of granitic and metamorphic rocks of the Coast Plutonic Complex the two flanking belts would be largely indistinguishable.

Shown in legend columns from the left are:
(1) assemblage nomenclature and symbol
(2) characteristic lithology of assemblages
(3) representative formal (and some informal) rock stratigraphic units in each assemblage and their distribution:-
   a) in six geological belts (see Index Map A)
   b) in fourteen 1:1 000 000 maps of the region (see Index Map B). The appropriate abbreviations for the maps are recorded after the group or formation in the legend, to indicate general location

1. Age of assemblage is indicated by standard Geological Survey of Canada symbols and usage
2. Name of assemblage is chosen as follows:
   (a) two existing rock-stratigraphic names, generally groups, are used if the named units are major components of the assemblage (e.g. Takla-Nicola assemblage (T) incorporates Takla, Nicola, Stuhini, Quesnel River etc. groups)
   (b) a geographic name is used where there is a multiplicity of named units and none is dominant (e.g. Front Range assemblage (F) is used for Devonian to Jurassic strata in the Rockies)
   (c) a geographic name is used where there are no formal rock stratigraphic names (e.g. Stikine assemblage for the Upper Paleozoic rocks, northwestern B.C.)
   (d) plutonic assemblages are unnamed but distinguished by age and composition

Sources of information are published and unpublished maps, reports and manuscripts of the Geological Survey of Canada, United States Geological Survey, and British Columbia Ministry of Energy, Mines and Petroleum Resources.

Compilation, supervision, co-ordination and organization was under the general direction of H.W. Tipper, G.J. Woodsworth and H. Gabrielse. Initial compilation, research, draughting, and assembling of data was carried out by R. Arnold, R. Turna, B. Dewonck, C. Banninger, G. Little, D. Baker, D. Sketchley, D. Villeneuve, and P. Taylor.

The technical organization of the map was largely the work of H. Gabrielse, R.B. Campbell, J.W.H. Monger, H.W. Tipper, and G.J. Woodsworth with critical assistance of C.J. Yorath, J.G. Souther, and other members of the Cordilleran Division. Compilation of the Kootenay River 1:1 000 000 map area was supervised by A.V. Okulitch, Geological Survey of Canada, Ottawa and critically reviewed by R.A. Price, Queens University, Kingston, Ontario. G.C. Taylor, Geological Survey, Calgary, co-ordinated the critical review and up-dating of the geology of the eastern Cordillera with the assistance of D.K. Norris, J.D. Aitken, D.G. Cook, M.P. Cecile, and other members of the Institute of Sedimentary and Petroleum Geology, Geological Survey of Canada, Calgary. Members of the United States Geological Survey provided information and critically reviewed parts of the map covering areas of the U.S.A., particularly D.L. Jones, Menlo Park, California and J.E. Harrison, Denver, Colorado. Constructive critical comments have been from many sources within and outside the Geological Survey of Canada.

The map is intended to portray factual information as well as interpretation for areas where little or no information is available. Areas of drift have been eliminated and bedrock interpretation of such areas is conjectural. Cartographic limitations have necessitated the elimination of many small but important geological units, the exaggeration of many small areas and the diagrammatic representation of some stratigraphic units. No attempt has been made to indicate age of faults and the position or extension of many faults is an extrapolation based on a minimum of evidence. The map incorporates information available to May, 1978.

Copies of this map may be obtained from the Geological Survey of Canada:
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MAP 1505A

LEGEND FOR THE TECTONIC ASSEMBLAGE MAP OF THE CANADIAN CORDILLERA AND ADJACENT PARTS OF THE UNITED STATES OF AMERICA

1505A (SUPP)

Canada

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