

GEOLOGICAL
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CANADA

DEPARTMENT OF MINES
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PAPER 62-19

ILLUSTRATIONS OF CANADIAN FOSSILS
TRIASSIC OF WESTERN AND ARCTIC CANADA

E. T. Tozer



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By

E. T. Tozer

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Illustrations of Canadian Fossils
TRIASSIC OF WESTERN AND ARCTIC CANADA

This report is one of a series planned to provide illustrations of stratigraphically important Canadian fossils and is designed for the use of geologists in the field. Illustrated here are some of the leading index fossils for the Triassic of Western and Arctic Canada. The relative stratigraphic position of the fossils illustrated is shown by the table on page 3.

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		PELAGIC FAUNAS		BENTHONIC FAUNAS	
		AMMONOIDS	PELECYPODS		
UPPER TRIASSIC	NORIAN			<i>Spondylospira lewensis</i> , <i>Myophoria cairnesi</i> , <i>M. textilis</i> , <i>M. suttonensis</i> , "Variamussium" <i>yukonensis</i> , <i>Plicatula perimbricata</i> , <i>Cassianella lingulata</i> , - <i>Paracochloceras</i> etc.	
		<i>Halorites cf. americanus</i> , <i>Rhabdoceras suessi</i>	<i>Monotis subcircularis</i>		
		<i>Himavatites</i> fauna with <i>Distichites</i> , <i>Pseudosirenites</i> , <i>Episculites</i> , <i>Parajuvavites</i> , <i>Alloclonites</i> , <i>Steinmannites</i> etc.	<i>Monotis alaskana</i>		
		<i>Drepanites</i>			
	KARNIAN	<i>Gonionotites-Malayites</i> fauna with <i>Mojisovicites</i> (<i>Stikinoceras</i>), <i>Guembelites</i> <i>clavatus</i> , <i>Dimorphites</i> <i>pardonei</i> ensis, <i>Sirenites</i> <i>nabeschi</i> etc.	Established range of <i>Halobia</i>		
		Main tropitid fauna with <i>Tropites</i> , <i>Discotropites</i> , <i>Hoplotropites</i> , <i>Jovites</i> , <i>Homerites semiglabosus</i> , <i>Klamathites</i> , <i>Arctosirenites</i> etc.		<i>Lima poyana</i> fauna	
		<i>Trachyceras</i>		Mahaffy Cliffs and Red Rock Spur faunas	
	MIDDLE TRIASSIC	LADINIAN	<i>Nathorstites</i> fauna with <i>Protrachyceras</i> , <i>Paratrachyceras</i> , <i>Silenticeras</i> , <i>Arpadites</i> , <i>Lobites</i> , <i>Daxatina</i> etc.	<i>Daonella nitanae</i> , <i>Daonella elegans</i>	<i>Spiriferina borealis</i> , <i>Terebratula liardensis</i> etc.
		ANISIAN	<i>Gymnotoceras</i> fauna with <i>Longobardites</i> , <i>Parapopanoceras</i> , "Ceratites" <i>hayesi</i> , "Hungarites", <i>Ptychites</i> etc.	<i>Daonella</i> spp.	
	LOWER TRIASSIC (SCYTHIAN)	OLENEKIAN	<i>Olenikites</i> , <i>Keyserlingites</i>	<i>Posidonia aranea</i>	
<i>Wasatchites</i> , <i>Xenocellites</i> , <i>Euflemingites</i> , <i>Arctoceras</i> , <i>Juvenites</i>			<i>Pseudomonotis occidentalis</i> , <i>Posidonia mimer</i>		
INDJAN		<i>Paranorites sverdrupi</i> <i>Proptychites candidus</i>			
		<i>Ophiceras</i> , <i>Pachyproptychites</i>	<i>Claraia stachei</i> <i>Claraia clarai</i>		
		<i>Otoceras</i>			

G S C

Table 1. Principal Marine Triassic Faunas of Western and Arctic Canada

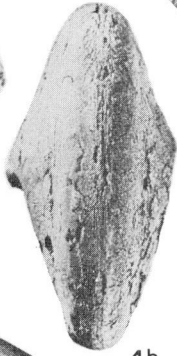
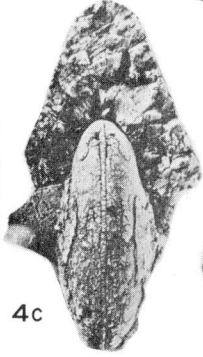
PLATE I

LOWER TRIASSIC

LOWER SCYTHIAN (INDUAN)

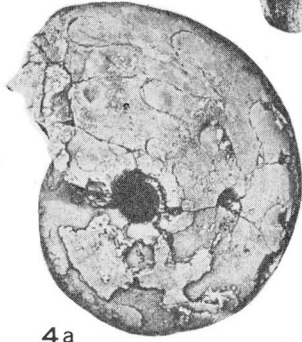
Earliest and early Induan

- Figure 1. Claraia stachei Bittner, right valve, GSC No. 14229, Grayling Formation, north side Liard River, opposite mouth of Toad River, British Columbia (Early or earliest Induan).
- Figure 2. Claraia stachei Bittner, left valve, GSC No. 14228, Grayling Formation, north side Liard River, opposite mouth of Toad River, British Columbia (Early or earliest Induan).
- Figure 3. Claraia clarai (Emmrich), right valve, GSC No. 14196, Spray River Formation, Sulphur Mountain Member, Brazeau River, Alberta (Early or earliest Induan).
- Figures 4a-c. Pachyproptychites strigatus (Tozer), paratype, GSC No. 14035, Blind Fiord Formation, south of Bunde Fiord, Axel Heiberg Island (Early Induan).
- Figure 5. Pachyproptychites strigatus (Tozer), suture line, paratype, GSC No. 14037, Blind Fiord Formation, south of Bunde Fiord, Axel Heiberg Island (Early Induan).
- Figures 6a, b. Ophiceras commune Spath, GSC No. 14030, Blind Fiord Formation, south of Bunde Fiord, Axel Heiberg Island (Early Induan).
- Figure 7. Otoceras boreale Spath, GSC No. 14026, Blind Fiord Formation, south of Bunde Fiord, Axel Heiberg Island (Earliest Induan).
- Figure 8. Otoceras boreale Spath, GSC No. 14020, Blind Fiord Formation, between Hare and Otto Fiords, Ellesmere Island (Earliest Induan).

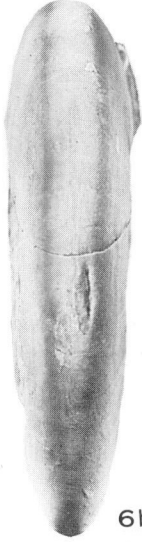


4c

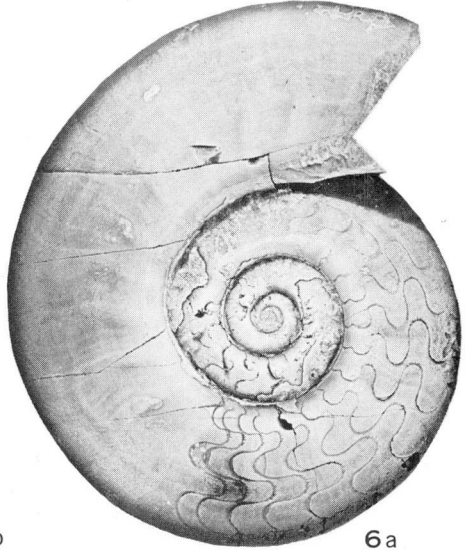
4b



4a



6b



6a



5



7



8

PLATE II

LOWER TRIASSIC

LOWER SCYTHIAN (INDUAN)

Middle or late Induan

- Figures 1a-c. Xenodiscoides cf. radians Waagen, side and ventral views and suture line (x 2), GSC No. 14269, Grayling Formation, 117 feet above base, Dunedin River, 4 miles north of mile 384, Alaska Highway, British Columbia.
- Figures 2a-c. Proptychites cf. candidus Tozer, GSC No. 14285, "Toad-Grayling Formation", 40 feet above base, 3 miles south of Mount Laurier, Halfway River area, British Columbia.
- Figure 3. Proptychites candidus Tozer, suture line of holotype, GSC No. 14044, Blind Fiord Formation, south of Bunde Fiord, Axel Heiberg Island.
- Figures 4a-c. Paranorites sverdrupi Tozer, holotype, GSC No. 14277, Blind Fiord Formation, north side of Otto Fiord, Ellesmere Island.
- Figures 5a, b. Paranorites sverdrupi Tozer, GSC No. 14283, "Toad-Grayling Formation", 45 feet above base, Needham Creek, Halfway River area, British Columbia.

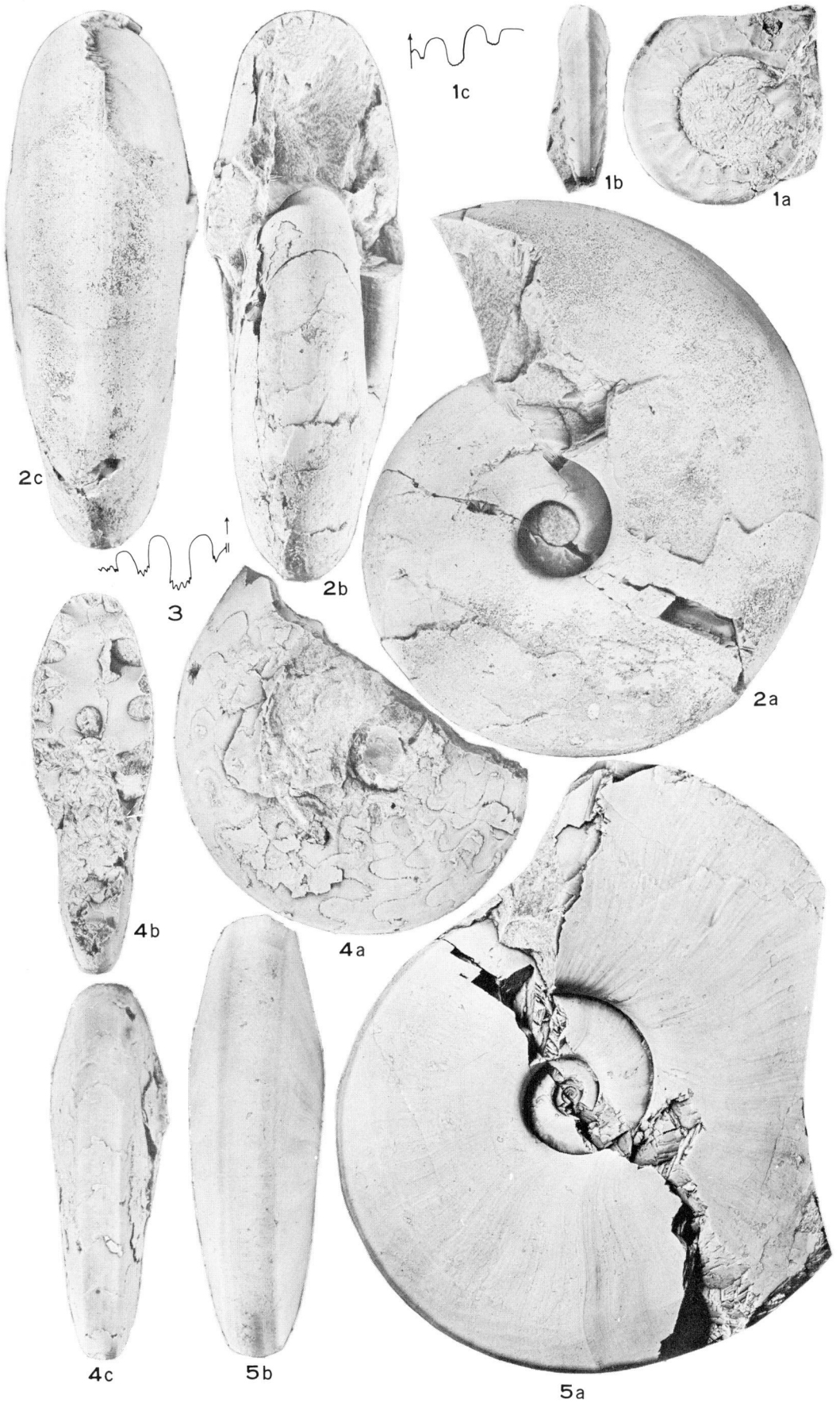


PLATE III

LOWER TRIASSIC

UPPER SCYTHIAN (OLENEKIAN)

Early Olenekian

- Figures 1a, b. Xenoceltites subevolutus Spath, GSC No. 14303, "Toad-Grayling Formation", below junction of Graham River and Horn Creek, Halfway River area, British Columbia.
- Figures 2a-c. Juvenites needhami Tozer, holotype, suture line (2c) is x 2, GSC No. 14292, "Toad-Grayling Formation", 180 feet above base, Needham Creek, Halfway River area, British Columbia.
- Figures 3a, b. Xenoceltites warreni McLearn, GSC No. 14231, Toad Formation, Toad River, 2 miles above Liard River, British Columbia.
- Figure 4. Arctoceras cf. blomstrandii (Lindström), rubber cast, GSC No. 14304, talus from Spray River Formation, Sulphur Mountain Member, Mystery Lake, Miette Area, Alberta.
- Figure 5. Arctoceras cf. blomstrandii (Lindström), rubber cast of crushed specimen associated with Posidonia mimer Oeberg, GSC No. 14294, "Toad-Grayling Formation", 140 feet above base, Needham Creek, Halfway River area, British Columbia.
- Figures 6a-c. Arctoceras blomstrandii (Lindström), GSC No. 14069 (6a, b); suture line of GSC No. 14065 (6c), Blind Fiord Formation, between Hare and Otto Fiords, Ellesmere Island.
- Figures 7a-c. Euflemingites romunderi Tozer, holotype x 1/2 (7a, b), GSC No. 14051; suture line of paratype (7c), GSC No. 14191, Blind Fiord Formation, between Hare and Otto Fiords, Ellesmere Island. (Crushed specimens of Euflemingites are common in the Sulphur Mountain Member and the Toad Formation.)
- Figure 8. Pseudomonotis occidentalis (Whiteaves), left valve, GSC No. 9478, Toad Formation, Liard River, 2 miles below Toad River, British Columbia.
- Figure 9. Pseudomonotis occidentalis (Whiteaves), left valve, GSC No. 4728, Toad Formation, Liard River, about 25 miles below Devils Portage, British Columbia.
- Figure 10. Pseudomonotis occidentalis (Whiteaves), right valve, GSC No. 9598, Toad Formation, Liard River, 2 miles below Toad River, British Columbia.

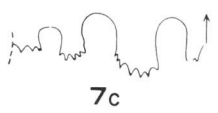
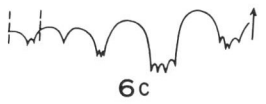
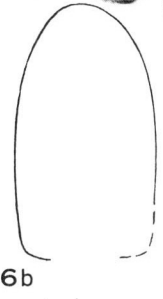
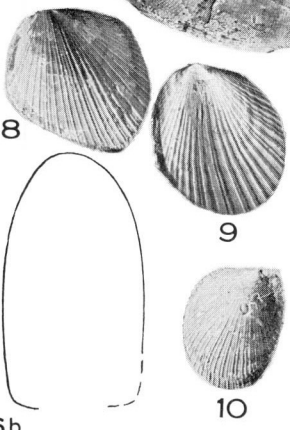
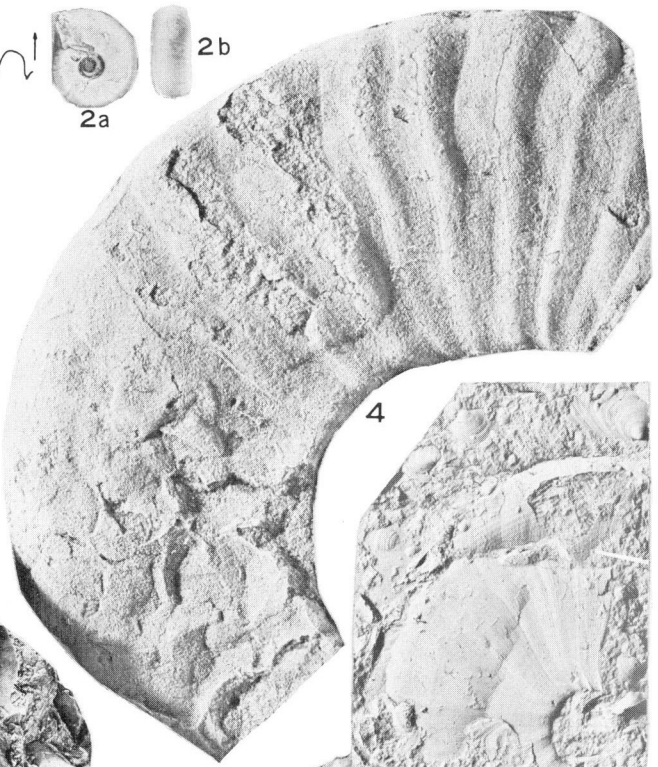
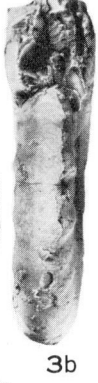
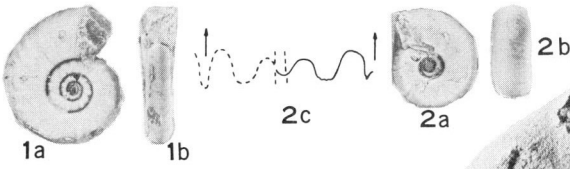


PLATE IV

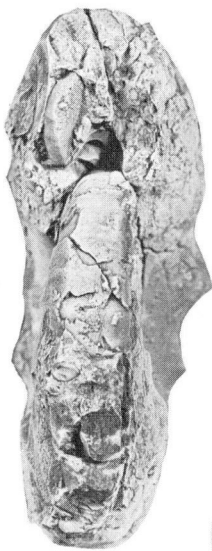
LOWER TRIASSIC

UPPER SCYTHIAN (OLENEKIAN)

Early Olenekian (Figures 1-3)

Late Olenekian (Figures 4-6)

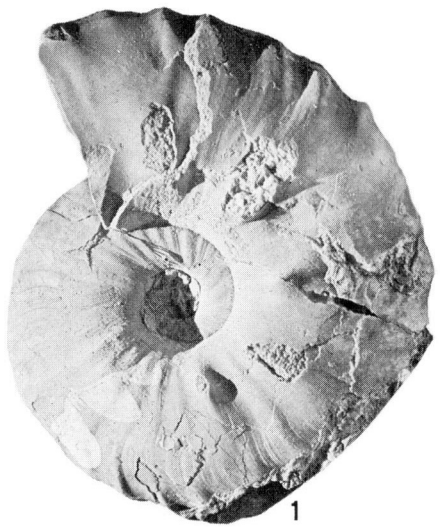
- Figure 1. Wasatchites tardus (McLearn), side view of holotype, GSC No. 9470, Toad Formation, Liard River, 2 miles below Toad River, British Columbia (Early Olenekian).
- Figures 2a, b. Wasatchites tardus (McLearn), anterior and ventral views of GSC No. 14088, Blind Fiord Formation, south of Bunde Fiord, Axel Heiberg Island (Early Olenekian).
- Figures 3a, b. Wasatchites? sp., GSC No. 14092, Toad Formation, Liard River, 2 miles below Toad River, British Columbia (Early Olenekian).
- Figures 4a-c. Olenikites canadensis Tozer, holotype, 4c x 2, GSC No. 14094, south side of Otto Fiord, near mouth, Ellesmere Island (Late Olenekian).
- Figure 5. Posidonia aranea Tozer, left valve, GSC No. 14230, Toad Formation, Toad River, lat. 59° 06'N, long. 124° 40'W, British Columbia (Late Olenekian).
- Figures 6a-c. Keyserlingites cf. subrobustus (Mojsisovics), x 1/2, H. Frebold collection, Grippia bed, Botneheia, south of Sassenfiord, Spitzbergen (Late Olenekian). Keyserlingites is now known from Ellesmere Island and crushed examples, probably of this genus, have been seen in the Toad Formation.



2a



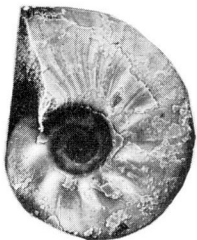
2b



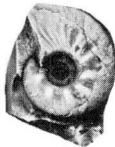
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4b



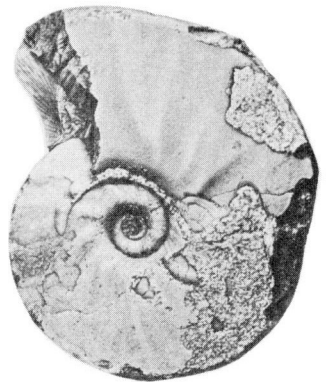
4c x 2



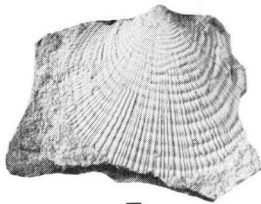
4a



3b



3a



5



6a x 1/2



6b x 1/2



6c x 1/2

PLATE V

MIDDLE TRIASSIC

ANISIAN

- Figures 1a-c. "Ceratites" hayesi McLearn, ventral, side and anterior views of GSC No. 14232, Toad Formation, Liard River, 8 miles southwest of mouth of Toad River, British Columbia.
- Figures 2a-c. Gymnotoceras beachi McLearn, side, anterior and ventral views of holotype, GSC No. 6692, Toad Formation, Chischa River, 8 miles south of mile-post 371, Alaska Highway, British Columbia.
- Figures 3a-c. Gymnotoceras helle McLearn, side, ventral and anterior views of GSC No. 14233, Toad Formation, near mile-post 375, Alaska Highway, British Columbia.
- Figure 4. Parapopanoceras selwyni McLearn, side view of paratype, GSC No. 9580, Toad Formation, near mile-post 378, Alaska Highway, British Columbia.
- Figures 5a, b. Parapopanoceras tetsa McLearn, side and anterior views of holotype, GSC No. 6440, Toad Formation, near mile-post 375, Alaska Highway, British Columbia.
- Figures 6a, b. "Hungarites" dawsoni McLearn, side and ventral views of holotype, GSC No. 9587, Toad Formation, Chischa River, 8 miles south of mile-post 363, Alaska Highway, British Columbia.
- Figures 7a, b. "Hungarites" bufonis McLearn, side and anterior views of holotype, GSC No. 9588, Toad Formation, Liard River, 2 miles downstream from Toad River, British Columbia.
- Figures 8a, b. Longobardites larvalis McLearn, side and ventral views of holotype, GSC No. 9583, Toad Formation, near mile-post 375, Alaska Highway, British Columbia.
- Figures 9a, b. Longobardites nevadanus Hyatt and Smith, side and anterior views of paratype of Longobardites canadensis McLearn, GSC No. 6450, Toad Formation, Tetsa River, British Columbia.
- Figures 10a, b. Ptychites rugifer Oppel, Anisian, Himalayas, India (from Diener). Ptychites occurs in Anisian deposits of Arctic and Western Canada.

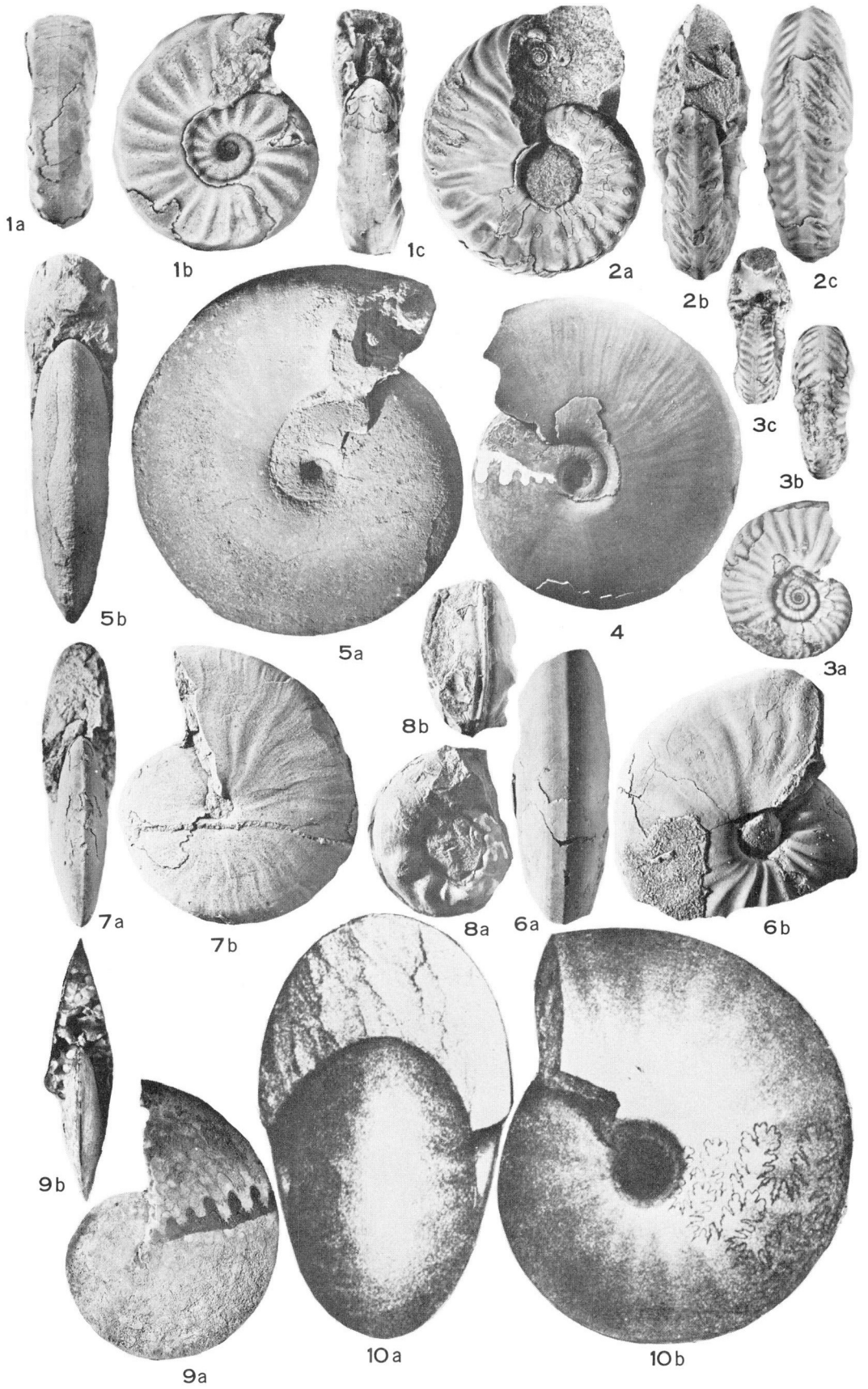


PLATE VI
MIDDLE TRIASSIC

LADINIAN

(Nathorstites fauna)

- Figures 1a-c. "Terebratula" liardensis Whiteaves, anterior, side and brachial views of holotype, GSC No. 4734, Liard Formation, Liard River, 30 miles below Devils Portage, British Columbia.
- Figures 2a, b. Spiriferina borealis Whiteaves, anterior and brachial views of holotype, GSC No. 4733, Liard Formation, Liard River, about 20 miles below Devils Portage, British Columbia.
- Figure 3. Daonella nitanae McLearn, left valve, holotype, GSC No. 8773, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 4. Daonella elegans McLearn, left valve, holotype, GSC No. 9537, "Dark siltstones", Sikanni Chief River, British Columbia.
- Figure 5. Silenticeras hatae McLearn, anterior view of holotype, GSC No. 9043, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 6. Silenticeras hatae McLearn, side view of GSC No. 9532, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figures 7a, b. Lobites pacianus McLearn, side and ventral views of holotype, GSC No. 8789, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 8. Lobites pacianus McLearn, oblique view showing external suture, GSC No. 9524, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figures 9a, b. Protrachyceras sikanianum McLearn, side and ventral views of holotype, GSC No. 9044, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 10. Sagenites gethingi McLearn, side view of holotype, GSC No. 8806, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 11. Sagenites gethingi McLearn, anterior view of GSC No. 9529, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figures 12a, b. Daxatina (= Dawsonites) canadensis (Whiteaves), side and ventral views of GSC No. 14234, Liard Formation, Tetsa River area, British Columbia.
- Figure 13. Paratrachyceras (Meginoceras) meginiae (McLearn), side view showing suture line, specimen missing, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 14. Paratrachyceras (Meginoceras) meginiae (McLearn), ventral view of GSC No. 8811, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 15. Paratrachyceras (Meginoceras) meginiae (McLearn), side view of holotype, GSC No. 9042, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figure 16. Nathorstites mcconnelli (Whiteaves), side view of GSC No. 9520, showing external suture, "Dark siltstones", Beattie Ledge, Peace River, British Columbia.
- Figures 17a, b. Nathorstites mcconnelli (Whiteaves), side and anterior views of GSC No. 14170, "Dark siltstones", Halfway River, 4 miles west of Mount Wright, British Columbia.
- Figure 18. Modiolus ahsisi McLearn, right valve, holotype, GSC No. 8767, "Grey beds", Beattie Hill, Peace River, British Columbia.
- Figure 19. Hoernesia woyoniana McLearn, holotype, GSC No. 8768, "Grey beds", Beattie Hill, Peace River, British Columbia.

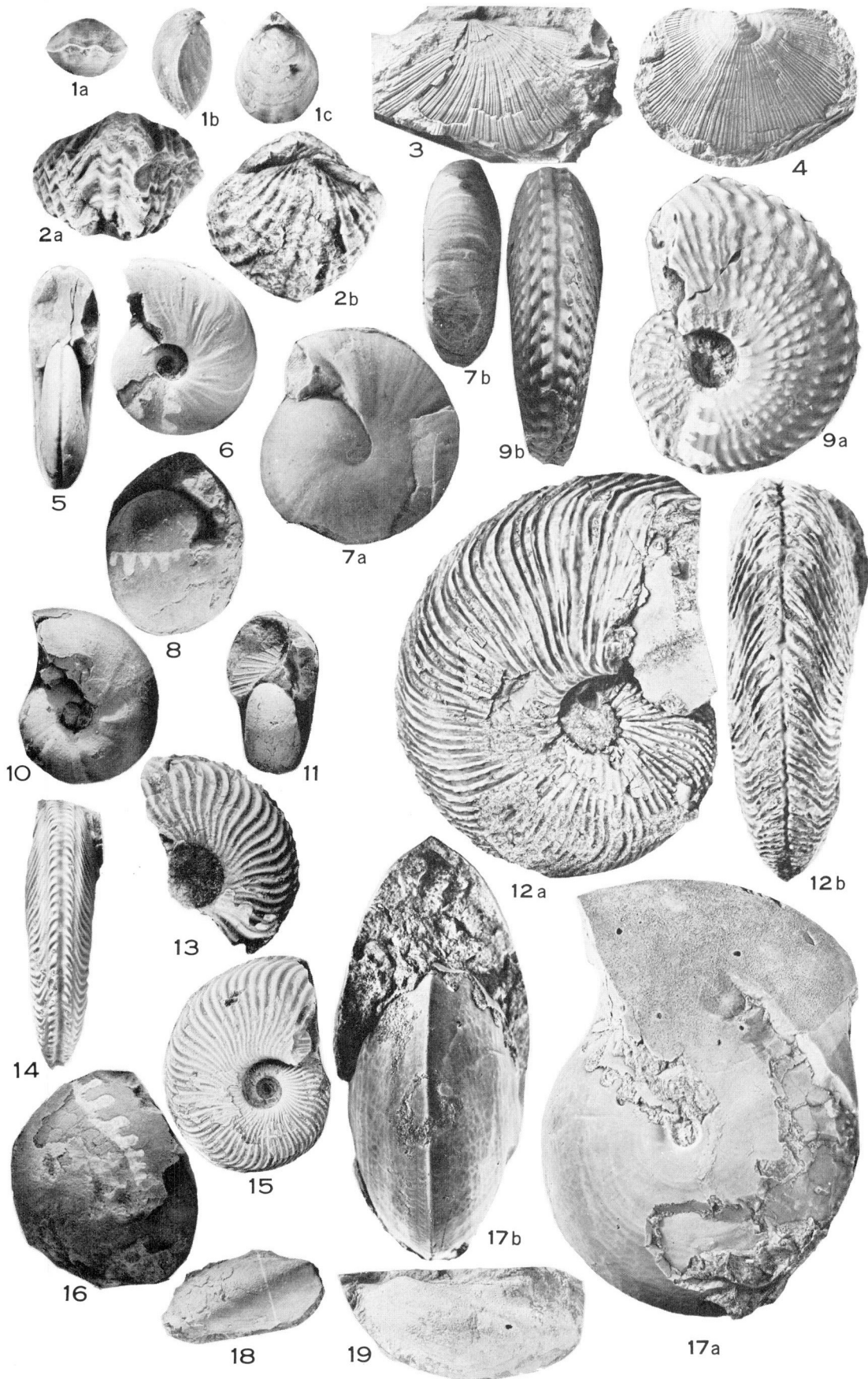


PLATE VII

UPPER TRIASSIC

KARNIAN

Early Karnian (Figures 1a, b)

Late Karnian (Figures 2-6)

- Figures 1a, b. Trachyceras sp., GSC No. 14311, unnamed beds of Karnian age, "Sheep Mountain", 12 miles south of Rapid of the Drowned on Liard River, Toad River area, British Columbia (Early Karnian).
- Figures 2a, b. Arctosirenites canadensis Tozer, variant with strong sculpture, talus from unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia (Late Karnian).
- Figures 3a, b. Arctosirenites canadensis Tozer, variant with delicate sculpture, GSC No. 14313, unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia (Late Karnian).
- Figures 4a, b. Jovites cf. bosnensis Mojsisovics, GSC No. 14314, unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia (Late Karnian).
- Figures 5a-c. Pamphagosirenites cf. pamphagus (Dittmar), GSC No. 17013, Quatsino Limestone, Izard Point, west coast of Vancouver Island, British Columbia (Late Karnian).
- Figures 6a, b. Discophyllites cf. ebneri (Mojsisovics), GSC No. 17014, Kunga Formation, west shore of Huston Inlet, Moresby Island, British Columbia (probably Late Karnian).

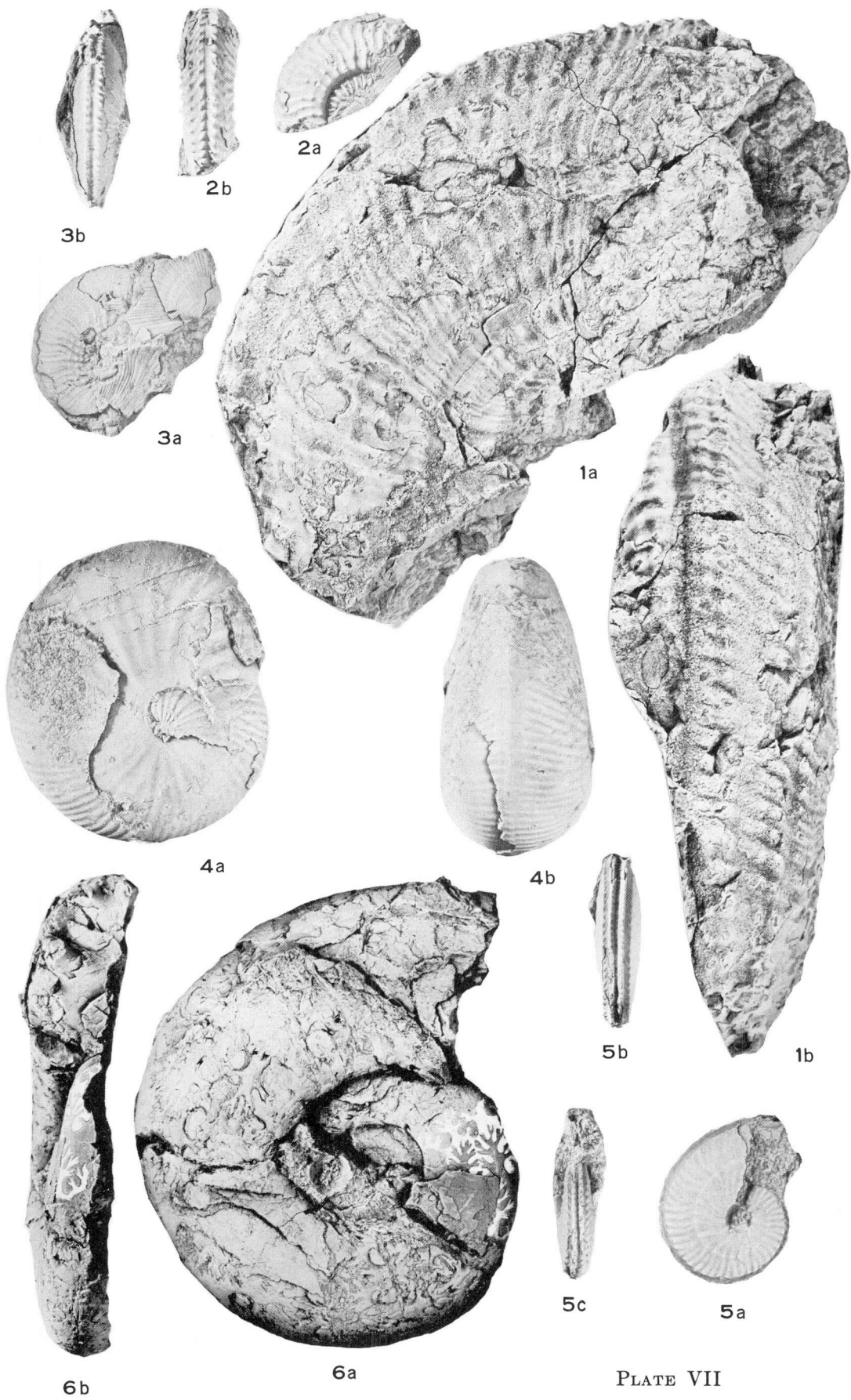


PLATE VII

PLATE VIII
UPPER TRIASSIC

KARNIAN

Late Karnian

- Figure 1. Halobia sp., left valve showing the anterior auricle, Pardonet Formation, Peace River, British Columbia. This genus is common and widespread in beds of Karnian and Norian age.
- Figure 2. Mysidioptera poyana (McLearn), right valve, holotype, GSC No. 8772, "Grey beds", Dry Canyon shoulder, Peace River, British Columbia.
- Figure 3. Myophoria silentiana var. placida McLearn, holotype, GSC No. 8812, "Grey beds", east of Schooler Creek, Peace River, British Columbia.
- Figures 4a, b. Homerites semiglobosus (Hauer), side and ventral views of GSC No. 14235, unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia.
- Figures 5a, b. Hannaoceras sp. side and anterior views of GSC No. 14236, limestone of Karnian age, Open Bay, Quadra Island, British Columbia.
- Figures 6a, b. Discotropites cf. mojsvarensis Smith, side and ventral views of GSC No. 14237, talus from unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia.
- Figure 7. Discotropites cf. mojsvarensis Smith, side view of fragmentary individual showing the high ventral keel and the strigate sculpture, GSC No. 14238, beds of Karnian age, King Salmon Mountain, Tulsequah area, British Columbia.
- Figures 8a, b. Discotropites sp., side and ventral views of GSC No. 14239, talus from unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia.
- Figure 9. Sirenites cf. senticosus (Dittmar), side view of GSC No. 14240, unnamed beds of Karnian age, near summit of "Sheep Mountain", 12 miles south of Rapid of the Drowned on Liard River, British Columbia.
- Figure 10. Hoplotropites cf. auctus Dittmar, periphery of GSC No. 14241, unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia.
- Figures 11a, b. Hoplotropites cf. auctus Dittmar, side and ventral views, GSC No. 14242, unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia.
- Figures 12a, b. Tropites johnsoni Smith, side and ventral views of GSC No. 14243, beds of Karnian age, Iskut River area, British Columbia.
- Figures 13a, b. Juvavites (Anatomites) cf. knowltoni Smith, side and anterior views of GSC No. 14244, unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia.
- Figures 14a, b. Juvavites (Anatomites) cf. hyatti (Smith), side and ventral views of GSC No. 14245, talus from unnamed beds of Karnian age, "Mount Kindle", mile-post 427, Alaska Highway, British Columbia.
- Figures 15a, b. Trachysagenites herbichi (Mojsisovics), side and ventral views of GSC No. 14246, Quatsino Limestone, Ououkinsh Inlet, west coast of Vancouver Island, British Columbia.

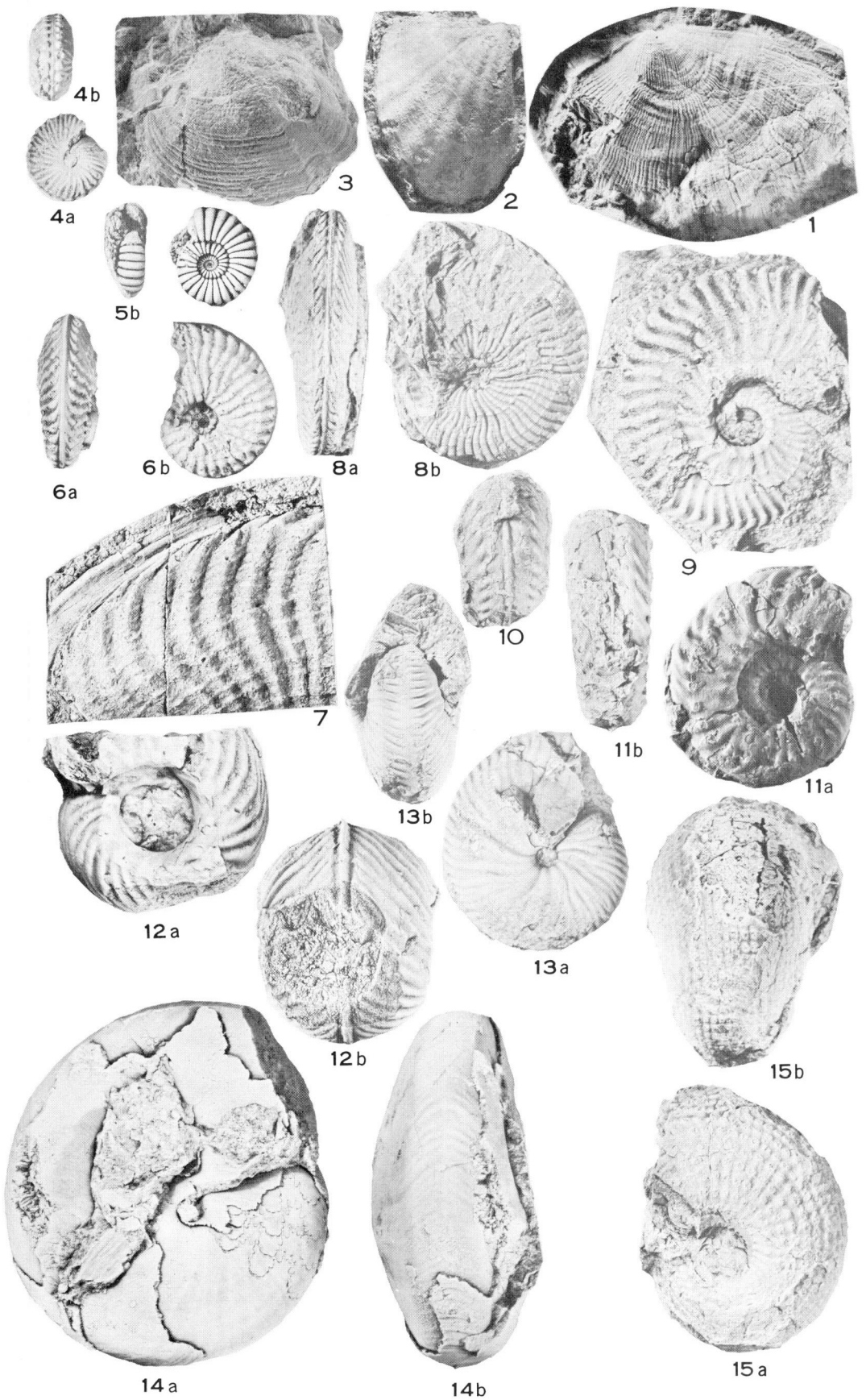


PLATE IX

UPPER TRIASSIC

KARNIAN

Latest Karnian

- Figures 1a, b. Mojsisovicsites (Stikinoceras) kerri McLearn, side and ventral views of holotype, GSC No. 9048, Pardonet Formation, Brown Hill, Peace River, British Columbia.
- Figure 2. Malayites dawsoni McLearn, ventral view of holotype, GSC No. 8836, talus from Pardonet Formation, Peace River, near Jewett fault, British Columbia.
- Figure 3. Malayites dawsoni McLearn, side view of GSC No. 12604, talus from Pardonet Formation, locality as Figure 2.
- Figures 4a, b. Gonionotites rarus (McLearn), side and ventral views of GSC No. 9512, Pardonet Formation, Brown Hill, Peace River, British Columbia.
- Figures 5a-c.* Juvavites magnus McLearn, side, anterior and ventral views of holotype, GSC No. 8837, Brown Hill, Peace River, British Columbia.
- Figure 6. Gryphaea chakii McLearn, left valve, holotype, GSC No. 8770, Pardonet Formation, Peace River foothills, British Columbia.
- Figures 7a, b. Guembelites clavatus (McLearn), side and ventral views of GSC No. 14247, Pardonet Formation, Pine River area, lat. 55°45'N, long. 122°52'W, British Columbia.

*This species may be of early Norian age (see McLearn, 1960, p. 32; Tozer, 1961a, p. 13).

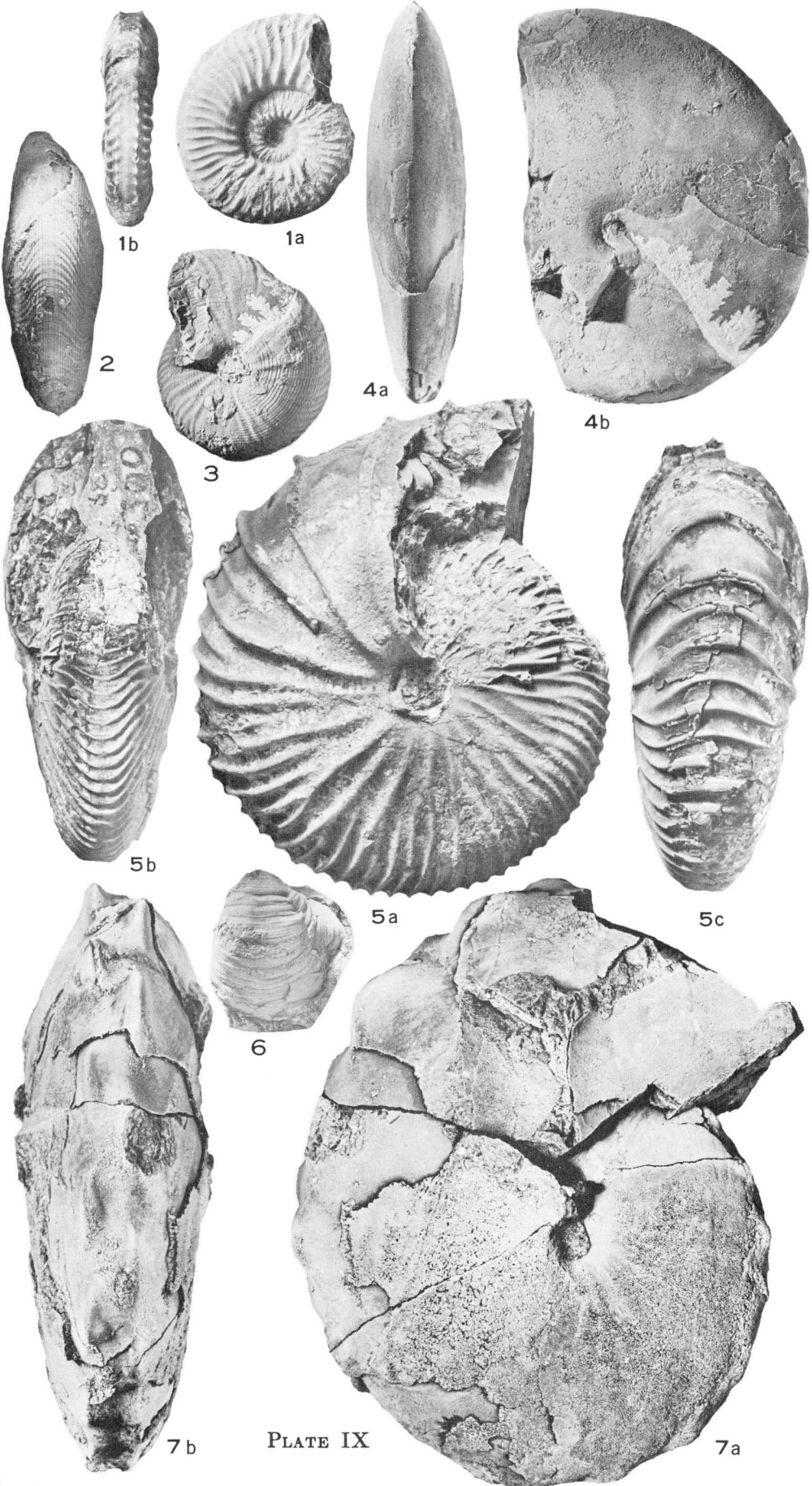


PLATE IX

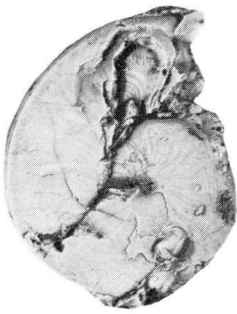
PLATE X

UPPER TRIASSIC

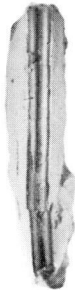
NORIAN

Early Norian

- Figures 1a, b. Drepanites hyatti rutherfordi McLearn, side and ventral views of GSC No. 14248, Pardonet Formation, Halfway River area, lat. 56° 28'N, long. 122° 53'W.
- Figures 2a, b. Pseudosirenites pardoneti (McLearn), side and ventral views of paratype, GSC No. 8845, Pardonet Formation, Black Bear Ridge, Peace River, British Columbia.
- Figures 3a, b. Thetitides exquisitus (McLearn), side and ventral views of paratype, GSC No. 9497, Pardonet Formation, Pardonet Hill, Peace River, British Columbia.
- Figure 4. "Myophoria" laeta var. eminens McLearn, left valve, holotype, GSC No. 9251, Pardonet Formation, Sikanni Chief River, east of Chicken Creek, British Columbia.
- Figures 5a, b. Distichites gethingi McLearn, side and ventral views of holotype, GSC No. 8849, Pardonet Formation, Black Bear Ridge, Peace River, British Columbia.
- Figure 6. Episculites teres (McLearn), side view of holotype, GSC No. 9493, Pardonet Formation, Black Bear Ridge, Peace River, British Columbia.
- Figure 7. Episculites corpulentus (McLearn), ventral view of holotype, GSC No. 9494, Pardonet Formation, Black Bear Ridge, Peace River, British Columbia.
- Figures 8a, b. Episculites ornatus (McLearn), side and ventral views of holotype, x 2, GSC No. 9492, Pardonet Formation, Black Bear Ridge, Peace River, British Columbia.
- Figures 9a, b. Himavatites columbianus McLearn, side and ventral views of GSC No. 9265, Pardonet Formation, Sikanni Chief River below mouth of Chicken Creek, British Columbia.



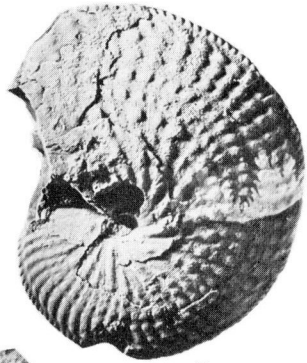
1a



1b



2b



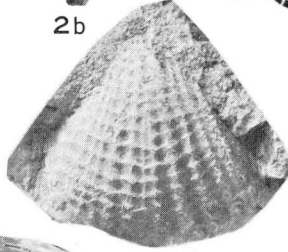
2a



3b



3a



4



6



7



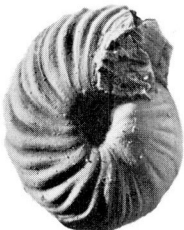
5a



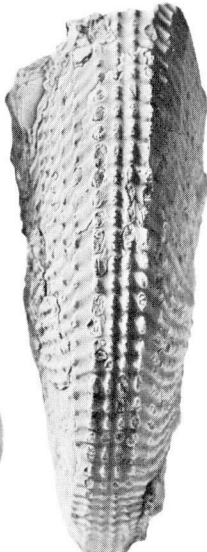
5b



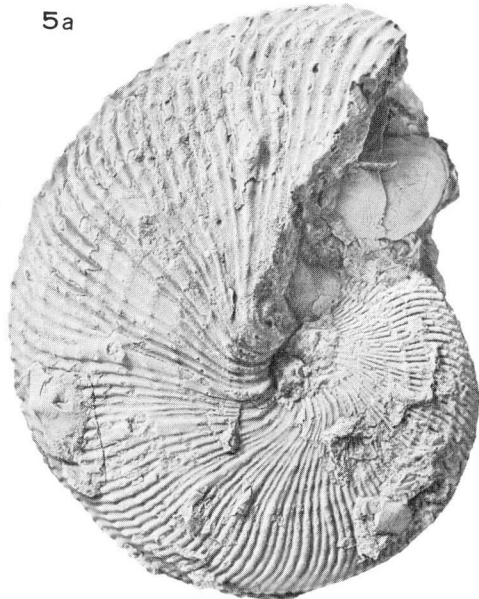
8b x 2



8a x 2



9b



9a

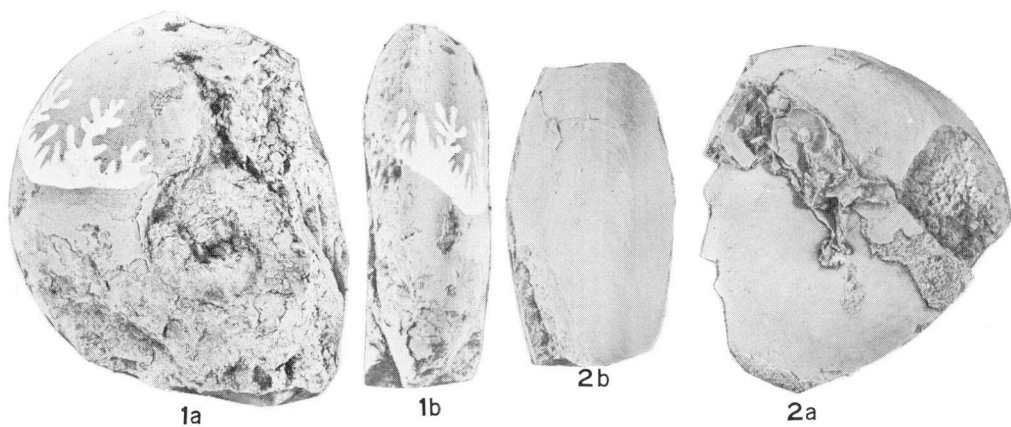
PLATE XI

UPPER TRIASSIC

NORIAN

Early Norian

- Figures 1a, b. Rhacophyllites sp., GSC No. 14305, Bonanza Group north shore of Esperanza Inlet, west coast of Vancouver Island, British Columbia. Rhacophyllites occurs in rocks of both Karnian and Norian age.
- Figures 2a, b. Didymites sp., GSC No. 14307, Pardonet Formation, tributary of Graham River, 10 miles southeast of Christina Falls, Halfway River area, British Columbia.
- Figures 3a, b. Steinmannites sp., GSC No. 14308, Pardonet Formation, 7 miles southwest of mouth of Needham Creek, Halfway River area, British Columbia.
- Figures 4a, b. Helictites sp., GSC No. 14309, Pardonet Formation, 7 miles southwest of mouth of Needham Creek, Halfway River area, British Columbia.
- Figures 5a-c. Alloclionites cf. woodwardi (Mojsisovics), GSC No. 14310, Pardonet Formation, 7 miles southwest of mouth of Needham Creek, Halfway River area, British Columbia.
- Figures 6a, b. Parajuvavites cf. buddhaicus Mojsisovics, GSC No. 14306, Bonanza Group, Amos Island, off west coast of Vancouver Island, British Columbia.
- Figures 7a, b. Himavatites columbianus McLearn, holotype, GSC No. 8847, Pardonet Formation, talus, Brown Hill, Peace River, British Columbia.

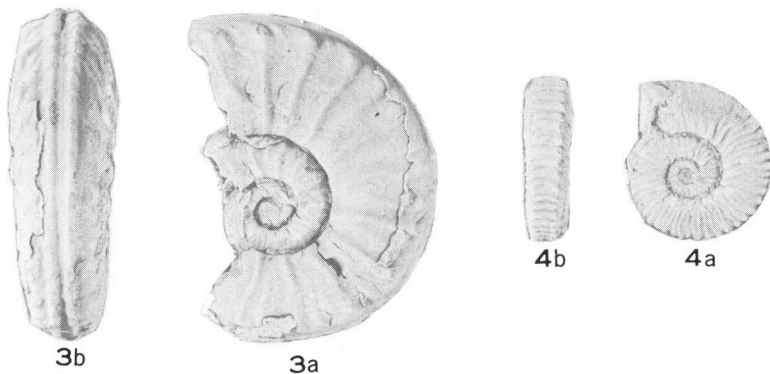


1a

1b

2b

2a

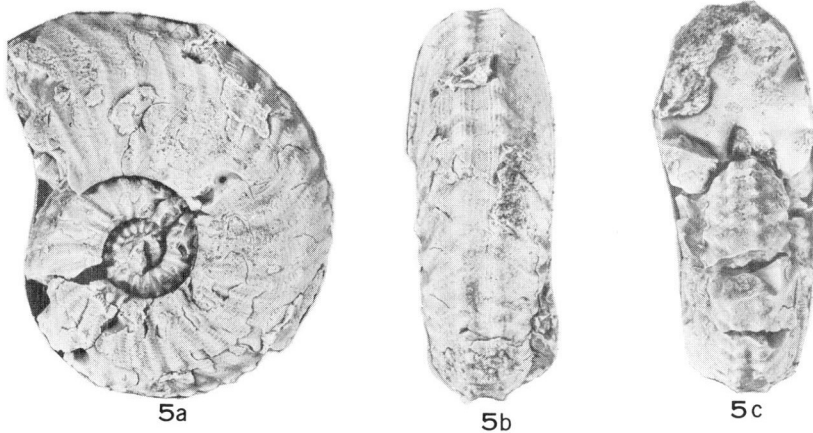


3b

3a

4b

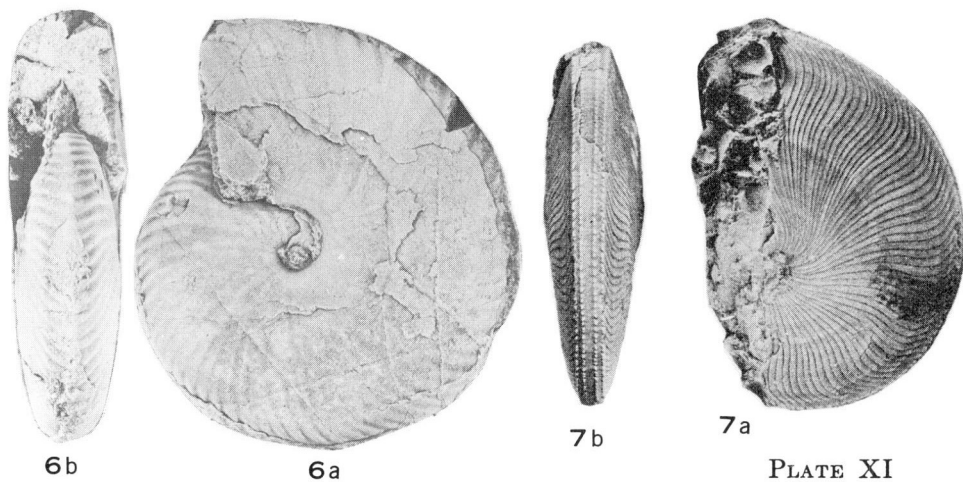
4a



5a

5b

5c



6b

6a

7b

7a

PLATE XI

PLATE XII
UPPER TRIASSIC

NORIAN

Late Norian

- Figures 1a, b. Cassianella lingulata Gabb, side and top views of left valve, GSC No. 14249, limestone of Norian age, Bonanza Group, Malkoep Inlet, west coast of Vancouver Island, British Columbia.
- Figures 2a, b. "Variamussium" yukonensis Lees, exterior and interior of right valve, GSC No. 14250, Sutton Formation, Cowichan Lake, Vancouver Island, British Columbia.
- Figure 3. "Variamussium" yukonensis Lees, exterior of left valve, GSC No. 14251, Sutton Formation, Cowichan Lake, Vancouver Island, British Columbia.
- Figures 4a, b. Paraclochoceras suessi Mojsisovics, side and basal views of GSC No. 17016, x 2, beds of Norian age, Bonanza Group, Walters Island, west coast of Vancouver Island, British Columbia.
- Figure 5. Plicatula perimbricata Gabb, natural mould of interior of left valve showing outline and impression of hinge teeth, GSC No. 14252, beds of Norian age, Bonanza Group, west shore of Victoria Lake, Vancouver Island, British Columbia.
- Figure 6. Plicatula perimbricata Gabb, exterior of the convex right valve, GSC No. 14253, beds of Norian age, Bonanza Group, island in Kyuquot Bay, west coast of Vancouver Island, British Columbia.
- Figure 7. Plicatula perimbricata Gabb, rubber cast illustrating exterior of left valve with the characteristic sculpture, GSC No. 14254, beds of Norian age, Tyaughton Group, ridge east of south end of Spruce Lake, Tyaughton Lake area, British Columbia.
- Figure 8. "Myophoria" suttonensis Clapp and Shimer, interior of right valve, topotype, GSC No. 14255, Sutton Formation, Cowichan Lake, Vancouver Island, British Columbia.
- Figures 9a, b. "Myophoria" suttonensis Clapp and Shimer, exterior and interior of left valve, topotype, GSC No. 14256, Sutton Formation, Cowichan Lake, Vancouver Island, British Columbia.
- Figure 10. "Myophoria" sp. exterior of right valve, GSC No. 14257, Sutton Formation, Cowichan Lake, Vancouver Island, British Columbia.
- Figure 11. Spondylospira lewesensis (Lees), brachial valve, GSC No. 14259, Lewes River Group, Formation F, east shore of Lake Laberge, 11 miles south of Lower Laberge, Yukon Territory.
- Figure 12. Spondylospira lewesensis (Lees), posterior view of GSC No. 14260, locality as Figure 11.
- Figure 13. Spondylospira lewesensis (Lees), anterior view of GSC No. 14261, locality as Figure 11.
- Figure 14. "Myophoria" adornata McLearn, rubber cast, left valve, holotype, GSC No. 9438, Tyaughton Group, ridge at head of Grizzly Creek, Tyaughton Lake area, British Columbia.
- Figure 15. "Myophoria" cairnesi McLearn, rubber cast, left valve, holotype, GSC No. 9440, locality as Figure 14.
- Figures 16a, b. Cyclocelites cf. arduini (Mojsisovics), GSC No. 17015, x 2, Sutton Formation, Cowichan Lake, Vancouver Island, British Columbia.
- Figures 17a, b. Halorites cf. americanus Hyatt, GSC No. 14262, Lewes River Group, Formation D, near summit of Povoas Mountain, Laberge area, Yukon Territory.
- Figure 18. Rhabdoceras suessi Hauer, side view, GSC No. 14265, locality as Figure 17.
- Figures 19a-c. Rhabdoceras suessi Hauer, ventral, dorsal and side views of GSC No. 14264, locality as Figure 17.
- Figures 20a, b. Tutcheria cf. densestriata (Körner), interior and exterior of right valve, x 2, GSC No. 17016, Bonanza Group, near Mushroom Point, between Kyuquot Channel and Esperanza Inlet, Vancouver Island, British Columbia.
- Figure 21. Astarte appressa Gabb, right valve, GSC No. 14258, Bonanza Group, between Kyuquot Channel and Esperanza Inlet, Vancouver Island, British Columbia.
- Figure 22. Monotis subcircularis Gabb, right valve, GSC No. 14265, beds of Norian age, east side of Donjek River, 7 miles south of Wade Creek, Kluane Lake area, Yukon Territory.
- Figure 23. Monotis ochotica (Keyserling), rubber cast of impression of right valve showing byssal auricle, GSC No. 14224, Heiberg Formation, near Mount Nicolay, Cornwall Island, Arctic Archipelago.

