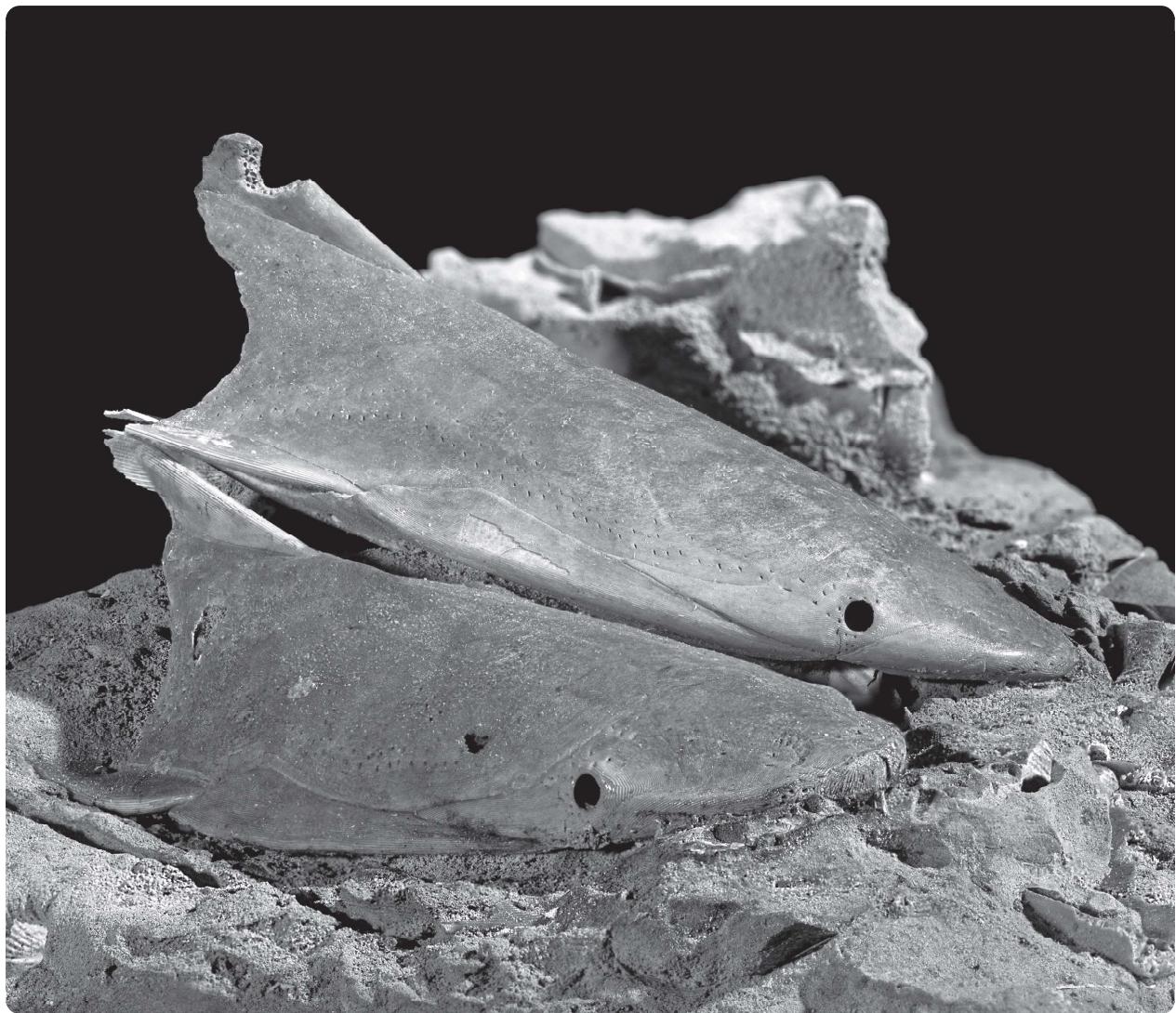


TABLE OF CONTENTS

Abstract	1
Résumé	2
Introduction	3
Stratigraphy, occurrences and age determinations	3
Morphological terminology	14
Classification and evolution of the heterostraci	23
Systematic palaeontology	30
Class PTERASPIDOMORPHI Goodrich, 1909	30
Subclass HETEROSTRACI Lankester, 1870	30
Order CYATHASPIDIFORMES Kiaer, 1930	31
Family JARVIKASPIDIDAE nov. fam.	31
Genus <i>Genetaspis</i> nov. gen.	33
<i>Genetaspis incohata</i> nov. gen. et sp.	34
Genus <i>Jarvikaspis</i> nov. gen.	36
<i>Jarvikaspis arctica</i> nov. gen. et sp.	36
<i>Jarvikaspis mauryensis</i> nov. gen. et sp.	38
Genus <i>Thuleaspis</i> nov. gen.	40
<i>Thuleaspis canadensis</i> nov. gen. et sp.	40
Family CYATHASPIDIDAE Kiaer, 1932	42
Subfamily PIONASPIDINAE nov. subfam.	44
Genus <i>Archegonaspis</i> Jaekel, 1927	45
<i>Archegonaspis cornwallensis</i> nov. sp.	47
Genus <i>Vernonaspis</i> Flower and Wayland-Smith, 1952	48
<i>Vernonaspis allena</i> Flower and Wayland-Smith, 1952	48
<i>Vernonaspis parryi</i> nov. sp.	49
<i>Vernonaspis suffusca</i> nov. sp.	50
<i>Vernonaspis cf. V. suffusca</i> nov. sp.	54
<i>Vernonaspis magna</i> nov. sp.	55
Genus <i>Pionaspis</i> Denison, 1964	56
<i>Pionaspis ebenina</i> nov. sp.	57
<i>Pionaspis rossi</i> nov. sp.	58
Genus <i>Prosobranchiaspis</i> nov. gen.	61
<i>Prosobranchiaspis prolata</i> nov. gen. et sp.	61
<i>Prosobranchiaspis smithbayensis</i> nov. gen. et sp.	62
Subfamily PARALASPIDINAE nov. subfam.	64
Genus <i>Paralaspis</i> nov. gen.	65
<i>Paralaspis franklini</i> nov. gen. et sp.	65
Genus <i>Kyphaspis</i> nov. gen.	67
<i>Kyphaspis boothiaensis</i> nov. gen. et sp.	67
Subfamily PRIONOTASPIDINAE nov. subfam.	70
Genus <i>Prionotaspis</i> nov. gen.	70
<i>Prionotaspis miranda</i> nov. gen. et sp.	70
<i>Prionotaspis? abbottensis</i> nov. gen. et sp.	72
Subfamily PORASPIDINAE Kiaer, 1932	73
Genus <i>Poraspis</i> Kiaer, 1930	75
<i>Poraspis rostrata</i> Kiaer and Heintz, 1935	75
<i>Poraspis thules</i> Elliott et al., 1998.	75
Subfamily ANGLASPIDINAE Kiaer, 1932	78
Genus <i>Anglaspis</i> Jackel, 1927	79
<i>Anglaspis macculloughi</i> (Woodward, 1891)	79
Genus <i>Pseudoanglaspis</i> nov. gen.	79
<i>Pseudoanglaspis aquilonaris</i> nov. gen. et sp.	81
<i>Pseudoanglaspis minima</i> nov. gen. et sp.	83

Subfamily IRREGULAREASPIDINAE Kiaer and Heintz, 1935	85
Genus <i>Dinaspidella</i> Strand, 1934	85
<i>Dinaspidella elegans</i> nov. sp.	85
<i>Dinaspidella tenuicostata</i> nov. sp.	87
<i>Dinaspidella elizabethae</i> Blieck and N. Heintz, 1983	88
Subfamily NAHANNIASPIDINAE nov. subfam.	89
Genus <i>Nahanniaspis</i> Dineley and Loeffler, 1976	91
<i>Nahanniaspis mclintocki</i> nov. sp.	91
Subfamily TELEASPIDINAE nov. subfam.	92
Genus <i>Teleaspis</i> nov. gen.	92
<i>Teleaspis terfa</i> nov. gen. et sp.	93
Subfamily EUMORPHASPIDINAE nov. subfam.	93
Genus <i>Eumorphaspis</i> nov. gen.	94
<i>Eumorphaspis borealis</i> nov. gen. (Denison, 1963)	94
<i>Eumorphaspis lata</i> nov. gen. et sp.	95
<i>Eumorphaspis solitaria</i> nov. gen. et sp.	95
<i>Eumorphaspis goodsiri</i> nov. gen. et sp.	96
Species A	97
Species B	98
Species C	99
Species D	99
Species E	99
Species F	100
Suborder CTENASPIDIFORMES nov. subord.	100
Family ARIASPIDIDAE Elliott and Swift, 2010	102
Genus <i>Ariaspis</i> Denison, 1963	102
<i>Ariaspis ornata</i> Denison	102
<i>Ariaspis cristata</i> nov. sp.	103
<i>Ariaspis nassichuki</i> nov. sp.	104
<i>Ariaspis multijubata</i> nov. sp.	106
<i>Ariaspis majuscula</i> nov. sp.	107
<i>Ariaspis perryi</i> nov. sp.	108
Family CTENASPIDIDAE Kiaer, 1930	108
Genus <i>Arctictenaspis</i> Elliott and Blieck, 2010	109
<i>Arctictenaspis borealis</i> nov. sp.	109
Order LISTRASPIDIFORMES nov. ord.	111
Family LISTRASPIDIDAE nov. fam.	113
Genus <i>Listraspis</i> Denison, 1964	113
<i>Listraspis canadensis</i> Denison, 1964	113
Order PTERASPIDIFORMES Kiaer, 1932	113
Family PROTOPTERASPIDIDAE Novitskaya, 1983	118
Genus <i>Protopteraspis</i> Leriche, 1924	118
<i>Protopteraspis?</i> sp. indet.	118
Genus <i>Trygonaspis</i> nov. gen.	119
<i>Trygonaspis sicula</i> nov. gen. et sp.	119
Genus <i>Canadapteraspis</i> Dineley and Loeffler, 1976	120
<i>Canadapteraspis formosa</i> nov. sp.	121
<i>Canadapteraspis uniformis</i> nov. sp.	123
Genus <i>Denisonaspis</i> nov. gen.	125
<i>Denisonaspis borea</i> nov. gen. et sp.	125

Order NATLASPIDIFORMES nov. ord.	128
Family RIMASVENTERASPIDIDAE nov. fam.	129
Genus <i>Rimasventeraspis</i> Tarrant, 1991	130
<i>Rimasventeraspis</i> cf. <i>R. angusta</i> (Denison, 1963)	130
<i>Rimasventeraspis?</i> <i>halsteadi</i> nov. sp.	131
<i>Rimasventeraspis?</i> <i>septentrionalis</i> nov. sp.	133
Order TRAQUAIRASPIDIFORMES Stensiö, 1958	135
Family TRAQUAIRASPIDIDAE (Kiaer, 1932)	136
Genus <i>Traquairaspis</i> Kiaer, 1932	136
<i>Traquairaspis longicarinata</i> nov. sp.	136
<i>Traquairaspis pristina</i> nov. sp.	137
Genus <i>Anomalaspis</i> nov. gen.	137
<i>Anomalaspis lacruma</i> nov. gen. et sp.	137
Genus <i>Whiteaspis</i> nov. gen.	138
<i>Whiteaspis spinifera</i> nov. gen. et sp.	138
Order WEIGELTASPIDIFORMES Halstead, 1973	139
Family WEIGELTASPIDIDAE Brotzen, 1933	141
Genus <i>Orthogoniaspis</i> nov. gen.	142
<i>Orthogoniaspis magnijubata</i> nov. gen. et sp.	142
<i>Orthogoniaspis loefflerae</i> nov. gen. et sp.	145
Family TORASPIDIDAE nov. fam.	147
Genus <i>Toraspis</i> nov. gen.	147
<i>Toraspis somersetensis</i> nov. gen. et sp.	148
Order CORVASPIDIFORMES Stensiö, 1958	150
Family WESTOLLASPIDIDAE nov. fam.	153
Genus <i>Westollaspis</i> nov. gen.	153
<i>Westollaspis hyperborea</i> nov. gen. et sp.	153
<i>Westollaspis cordata</i> nov. gen. et sp.	160
<i>Westollaspis gigas</i> nov. gen. et sp.	161
Family CORVASPIDIDAE Dineley, 1955	162
Genus <i>Corvaspis</i> Woodward, 1934	162
<i>Corvaspis porphyretica</i> nov. sp.	162
<i>Corvaspis woodwardi</i> nov. sp.	167
<i>Corvaspis ellesmerensis</i> nov. sp.	167
Order CYATHASPIDIFORMES Kiaer, 1932	168
Genus <i>Soehnaspis</i> nov. gen.	168
<i>Soehnaspis polaris</i> nov. sp.	169
Genus <i>Geissonaspis</i> nov. gen.	171
<i>Geissonaspis mutabilis</i> nov. gen. et sp.	171
Subclass HETEROSTRACI Lankester, 1870	172
Genus <i>Idanaspis</i> nov. gen.	172
<i>Idanaspis dimidiata</i> nov. gen. et sp.	173
<i>Idanaspis reinsoni</i> nov. gen. et sp.	174
<i>Idanaspis</i> sp. cf. <i>I. lemniscata</i> nov. gen. (Dineley and Loeffler, 1976)	175
Genus <i>Oniscolepis</i> Pander, 1856	176
<i>Oniscolepis</i> cf. <i>dentata</i>	177
Subclass PTERASPIDOMORPHI (Goodrich, 1909)	177
Genus <i>Aenigmaspis</i> nov. gen.	177
<i>Aenigmaspis falcata</i> nov. gen. et sp.	178
Acknowledgements	181
References	181
Plates	189



Canadapteraspis formosa nov. sp.