**Candela & Harper (EESTRSE 105.1) – Notes & References for Supplementary Material**

**Appendix 1.** **List of the taxa from the Barr Group and Ardwell Subgroup**

Described and figured by Williams (1962), together with, where relevant, updated taxonomic reassignment and stratigraphical range.

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**Appendix 2.** **Database for the early Sandbian analysis**

Genera numbered as follows: 1 = *Anazyga*; 2 = *Ancistrorhyncha*; 3 = *Anisopleurella*; 4 = *Apatomorpha*; 5 = *Atelelasma*; 6 = *Bellimurina*; 7 = *Bilobia*; 8 = *Bimuria*; 9 = *Brevicamera*; 10 = *Camerella*; 11 = *Chaulistomella*; 12 = *Chonetoidea/Sericoidea*; 13 = *Christiania*; 14 = *Colaptomena*; 15 = *Conotreta*; 16 = *Craspedelia*; 17 = *Cyclomyonia*; 18 = *Cyphomena*; 19 = *Cyrtonotella*; 20 = *Dactylogonia*; 21 = *Dinorthis*; 22 = *Diorthelasma*; 23 = *Doleroides*; 24 =*Dolerorthis*; 25 = *Dorytreta*; 26 = *Elasmothyris*; 27 = *Eodinobolus*; 28 = *Eoplectodonta*; 29 = *Eremotoechia*; 30 = *Eremotreta*; 31 = *Eridorthis*; 32 = *Fascifera*; 33 = *Gacella*; 34 = *Glyptambonites*; 35 = *Glyptomena*; 36 = *Glyptorthis*; 37 = *Hesperorthis*; 38 = *Isophragma*; 39 = *Kullervo*; 40 = *Laticrura*; 41 = *Leptaena*; 42 = *Leptellina*; 43 = *Limbimurina*; 44 = *Lingulella*; 45 = *Manespira*; 46 = *Mimella*; 47 = *Multicostella*; 48 = *Murinella*; 49 = *Neostrophia*; 50 = *Nothorthis*; 51 = *Oepikina*; 52 = *Oligorhynchia*; 53 = *Onychoplecia*; 54 = *Oxoplecia*; 55 = *Palaeoglossa*; 56 = *Palaeostrophomena*; 57 = *Paralenorthis*; 58 = *Parallelelasma*; 59 = *Parastrophina*; 60 = *Paucicrura*; 61 = *Paurorthis*; 62 = *Perimecocoelia*; 63 = *Petrocrania*; 64 = *Phragmorthis*; 65 = *Pionodema*; 66 = *Pionomena*; 67 = *Platymena*; 68 = *Plectocamara*; 69 = *Plectorthis*; 70 = *Polytoechia*; 71 = *Productorthis*; 72 = *Protozyga*; 73 = *Ptychoglyptus*; 74 = *Ptychopleurella*; 75 = *Rafinesquina*; 76 = *Rhipidomena*; 77 = *Rostricellula*; 78 = *Scaphorthis*; 79 = *Schizotreta*; 80 = *Skenidioides*; 81 = *Sowerbyella*; 82 = *Sowerbyites*; 83 = *Sphenotreta*; 84 = *Stenocamara*; 85 = *Strophomena*; 86 = *Sulevorthis*; 87 = *Taphrorthis*; 88 = *Titanambonites*; 89 = *Triplesia*; 90 = *Tropidothyris*; 91 = *Valcourea*; 92 = *Xenambonites*.

Assemblages coded as follows: [AUCHN] = Auchensoul Bridge Member of the Confinis Formation (Williams 1962); [CONF] = Confinis Formation (Williams 1962); [CRAIGM] = Craigmalloch Formation (Ince 1984); [GORSE] = Gorse Member of the Doularg Formation (Williams 1962); [JUB] = Jubilation Member of the Doularg Formation (Ingham & Tripp 1991); [MIN] = Minuntion Member of the Confinis Formation (Williams 1962); [lowST] = Lower Stinchar Limestone Formation (Williams 1962); [upST] = top of the Stinchar Limestone Formation (Williams 1962); [SUP62] = Superstes Formation from Williams (1962), [SUP81] = Superstes Formation from Tripp *et al.* (1981); the other assemblages (lower case) are those described by Potter & Boucot (1992, p. 312).

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**Appendix 3**. **Database for the middle Sandbian–early Katian Ardwell Subgroup analyses**

**Appendix 3.1**. Genera numbered as follows: 1 = *Anazyga*; 2 = *Anisopleurella*; 3 = *Anoptambonites*; 4 = *Apatobolus*; 5 = *Atelelasma*; 6 = *Aulidospira*; 7 = *Bellimurina*; 8 = *Bilobia*; 9 = *Bimuria*; 10 = *Boreadorthis*; 11 = *Camerella*; 12 = *Campylorthis*; 13 = *Catazyga*; 14 = *Chaulistomella*; 15 = *Christiania*; 16 = *Colaptomena*; 17 = *Conotreta*; 18 = *Craigella*; 19 = *Craniops*; 20 = *Craspedelia*; 21 = *Cyclospira*; 22 = *Cyphomena*; 23 = *Cyrtonotella*; 24 = *Dactylogonia*; 25 = *Dalmanella*; 26 = *Dinorthis*; 27 = *Diorthelasma*; 28 = *Doleroides*; 29 = *Dolerorthis*; 30 = *Drepanorhyncha*; 31 = *Elliptoglossa*; 32 = *Eodinobolus*; 33 = *Eoplectodonta*; 34 = *Eremotrema*; 35 = *Fardenia*; 36 = *Fascifera*; 37 = *Furcitella*; 38 = *Glossella*; 39 = *Glyptambonites*; 40 = *Glyptoglossella*; 41 = *Glyptomenoides*; 42 = *Glyptorthis*; 43 = *Hesperorthis*; 44 = *Howellites*; 45 = *Idiospira*; 46 = *Isophragma*; 47 = *Laticrura*; 48 = *Leangella*; 49 = *Leptaena*; 50 = *Leptellina*; 51 = *Limbimurina*; 52 = *Lingulella*; 53 = *Longvillia*; 54 = *Manespira*; 55 = *Metacamerella*; 56 = *Mimella*; 57 = *Mjoesina*; 58 = *Multicostella*; 59 = *Multispinula*; 60 = *Nicolella*; 61 = *Oanduporella*; 62 = *Oepikina*; 63 = *Oligorhynchia*; 64 = *Onniella*; 65 = *Onychoplecia*; 66 = *Orbiculoidea*; 67 = *Orthorhynchuloides*; 68 = *Oxoplecia*; 69 = *Pachyglossella*; 70 = *Palaeoglossa*; 71 = *Palaeostrophomena*; 72 = *Paralenorthis*; 73 = *Parastrophina*; 74 = *Parastrophinella*; 75 = *Paterula*; 76 = *Paucicrura*; 77 = *Paurorthis*; 78 = *Petrocrania*; 79 = *Phragmorthis*; 80 = *Pionodema*; 81 = *Platystrophia*; 82 = *Plectambonites*; 83 = *Plectorthis*; 84 = *Porambonites*; 85 = *Protozyga*; 86 = *Ptychoglyptus*; 87 = *Rhactorthis*; 88 = *Rafinesquina*; 89 = *Reuschella*; 90 = *Rhynchotrema*; 91 = *Rostricellula*; 92 = *Sampo*; 93 = *Schizotreta*; 94 = *Sericoidea*; 95 = *Sivorthis*; 96 = *Skenidioides*; 97 = *Sowerbyella*; 98 = *Sowerbyites*; 99 = *Strophomena*; 100 = *Sulevorthis*; 101 = *Taphrorthis*; 102 = *Titanambonites*; 103 = *Trigrammaria*; 104 = *Triplesia*; 105 = *Valcourea*; 106 = *Xenambonites.*

Assemblages coded as follows. **Balclatchie Formation:** Bellmoor Member: [BELL] = Bellmoor; [SHIEL] = Shiel Hill; Laggan Member: [GLEND] = Glendrissaig; [PINM1] = Pinmacher Farm; [LAGG] = Laggan Burn; [DALF] = Dalfask Hill; [DOWH] = Dow Hill; Pumphouse Member: [PUMPH] = Penwhapple Glen; Burn Side Conglomerate Member: [BURNS] = Penwhapple Glen. **Ardwell Farm Formation:** [ARDB] = Ardmillan Braes; [BARBH] = Barbae Hill; [MEIKL] = Meikle Letterpin; [PINMY] = Pinmery; [PINM2] = Pinmore; [REAG] = Rea Glen; [TORM2] = Tormitchell; **Conglomerate members:** [ASSL] = Assel; [CASC] = Cascade Grits; [TORM1] = Tormitchell; **Craighead Inlier:** [CRAIGH] = Craighead Limestone Formation; [KILN] = Kiln Mudstone Member; the other assemblages (lower case) are those described by Potter & Boucot (1992; pp 314–315).

**Appendix 3.2.**  **Supplementary data**

Genera numbering as Appendix 3.1; includes supplementary data from the National Museums Scotland’s Invertebrate Palaeobiology collection: [CRAIGLIM] = Limestone beds of the Craighead Formation; [SERIC] = Sericoidea Mudstone Member of the Craighead Formation.

**Reference for Appendix 3**

Potter, A. W. & Boucot, A. J. 1992. Middle and late Ordovician brachiopod benthic assemblages of North America. *In* Webby, B. D. & Laurie, J. R. (eds) *Global perspectives on Ordovician geology*, 307–323. Rotterdam: A. A. Balkema.