Appendix 3-Photo 1. Dense overconsolidated silty-sand subglacial traction till with oxidation (iron staining) on the joint planes, from a till exposure overlying carbonate bedrock, southwestern Northwest Territories in northern Canada. Note that most of the clasts are subrounded. Knife for scale. Photo by Roger Paulen.

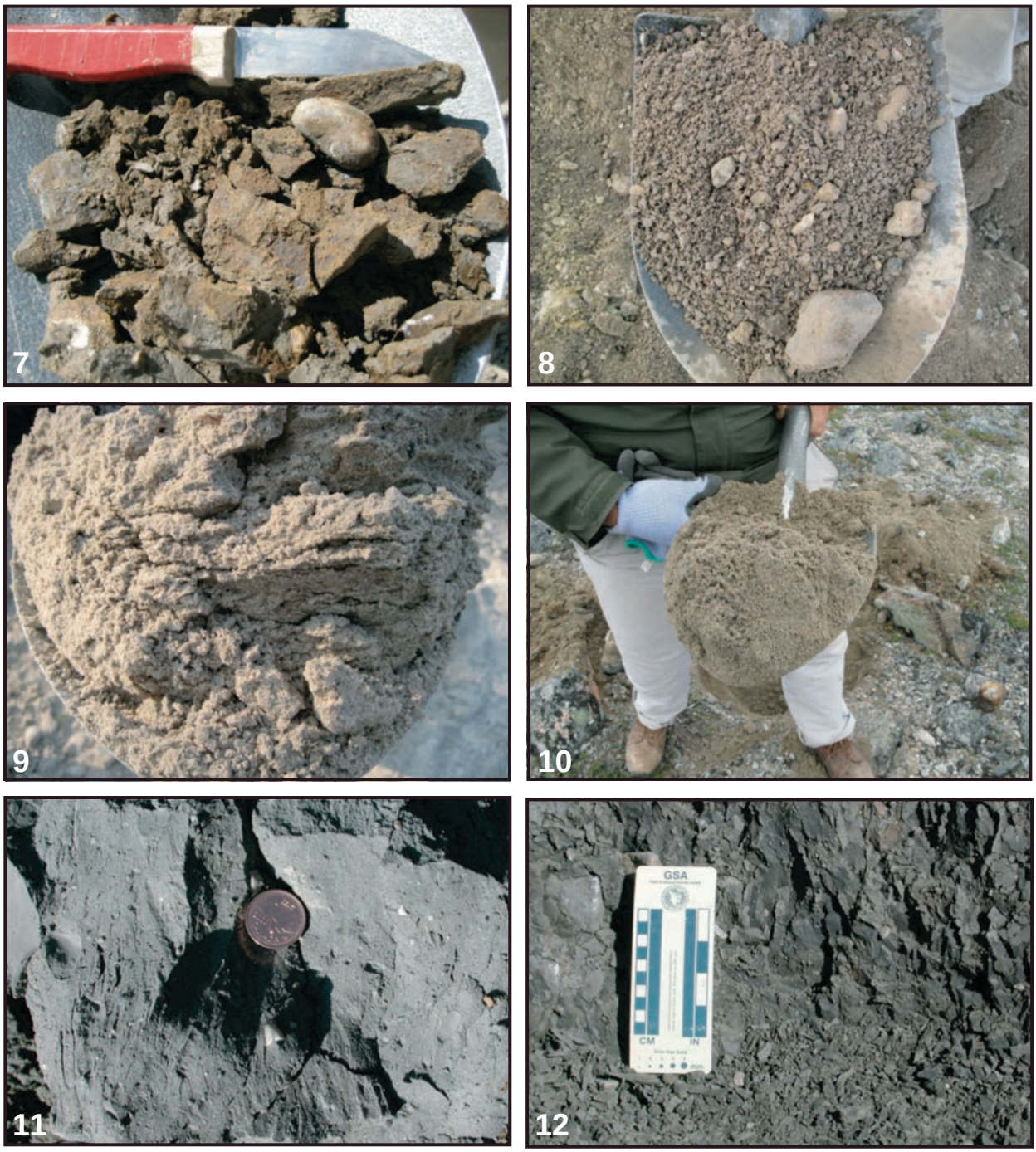
Appendix 3-Photo 2. Moderately indurated, weakly jointed, strongly fissile silty-sand subglacial traction till from a till exposure overlying carbonate bedrock, southwestern Northwest Territories, northern Canada. The clasts range from subrounded to subangular. Photo by Roger Paulen.

Appendix 3-Photo 3. Dense, overconsolidated clayey-silt subglacial traction till with weak jointing and minimal fissility, from a till exposure overlying Cretaceous sedimentary bedrock of the Western Canada Sedimentary Basin, northern Alberta, western Canada. Note that the clast content appears to be low because only the indurated (exotic) clasts that are easily seen in the till exposure. Geotool is 75 cm long. Photo by Roger Paulen.

Appendix 3-Photo 4. Moderately compact clayey silt subglacial traction till with well-developed jointing and strong fissility, from a till exposure overlying Cretaceous sedimentary bedrock of the Western Canada Sedimentary Basin, northern Alberta, western Canada. The upper part of the exposure has dried out, resulting in desiccation and separation of the till along shear planes. Hoe pick is 65 cm long. Photo by Roger Paulen.

Appendix 3-Photo 5. Meltout till from an exposure of till that was deposited during the recession of the last Irish Ice Sheet. Note the convoluted sandy interbeds. Rock hammer for scale. Photo by Isabelle McMartin.

Appendix 3-Photo 6. Dense, strongly jointed, fissile sandy-silt subglacial traction till that is overlain by a weakly compacted sandy-silt meltout till, from an exposure in the Western Canada Sedimentary Basin, northern Alberta, western Canada. Note the difference in compaction/overconsolidation between the two tills and thus the resulting differences in structure. The grain size distribution and geochemical composition of the two tills are similar, only the depositional environment under the ice sheet is different. Photo by Roger Paulen.



Appendix 3-Photos 7 to 12. Subglacial traction tills as they appear when sampled. Photo 7: strongly jointed, weakly fissile till on a shovel, collected from the same region as till shown in Photo 1. Small knife for scale. Photo by Roger Paulen; Photo 8: weakly jointed, strongly fissile till on shovel, collected from same area as till shown in Photo 2. Photo by Beth McClenaghan; Photo 9: fissile sandy quartz-rich till on a shovel, collected from the same region as till shown in Photo 13. Photo by Roger Paulen; Photo 10: loose, structureless sandy till on a shovel, collected in permafrost terrain in the same region as Photo 14. Photo by Beth McClenaghan; Photo 11: chunk of clayey-silt till mostly derived from Cretaceous sedimentary bedrock, with few joints and no fissility, collected from the same region as Photo 3. Photo by Roger Paulen; Photo 12: disggregated nature of strongly jointed and fissile clayey-silt till at bottom of photo, collected from the same region as till shown in Photo 4. Photo by Roger Paulen.

Appendix 3-Photo 13. Moderately compacted, sandy subglacial traction till from an exposure in the Proterozoic Athabasca sedimentary basin, northern Saskatchewan, central Canada. When sand-rich till is exposed to the elements, it loses its glacigenic properties due to the paucity of fine-grained matrix material (silt and clay) and it thus resembles loose quartz sand. Photo by Roger Paulen.

Appendix 3-Photo 14. Sandy subglacial traction till sampled in a frost boil that formed in a discontinuous permafrost landscape of the Canadian Shield, northern Labrador, eastern Canada. The cryogenic processes in the permafrost active layer have caused the sandy till to lose most of its glacigenic properties. Photo by Beth McClenaghan.

Appendix 3-Photo 15. Crudely stratified diamict and bedrock fragments exposed in a 3 m deep exploration trench on the side of a mountain in central British Columbia, western Canada. Despite its till-like appearance, the material consists of subtle beds of clast-supported and matrix supported sediment that gently dip downslope (to the right side of photo) indicating that this material has moved after it was initially deposited as till upslope from this site. This material is not optimal for sampling because it has been displaced downslope. Photo by Roger Paulen.