

17th International Ichnofabric Workshop, 23.–29. October 2023 in Faxe [Denmark]

Following in the footsteps of Richard Granville Bromley

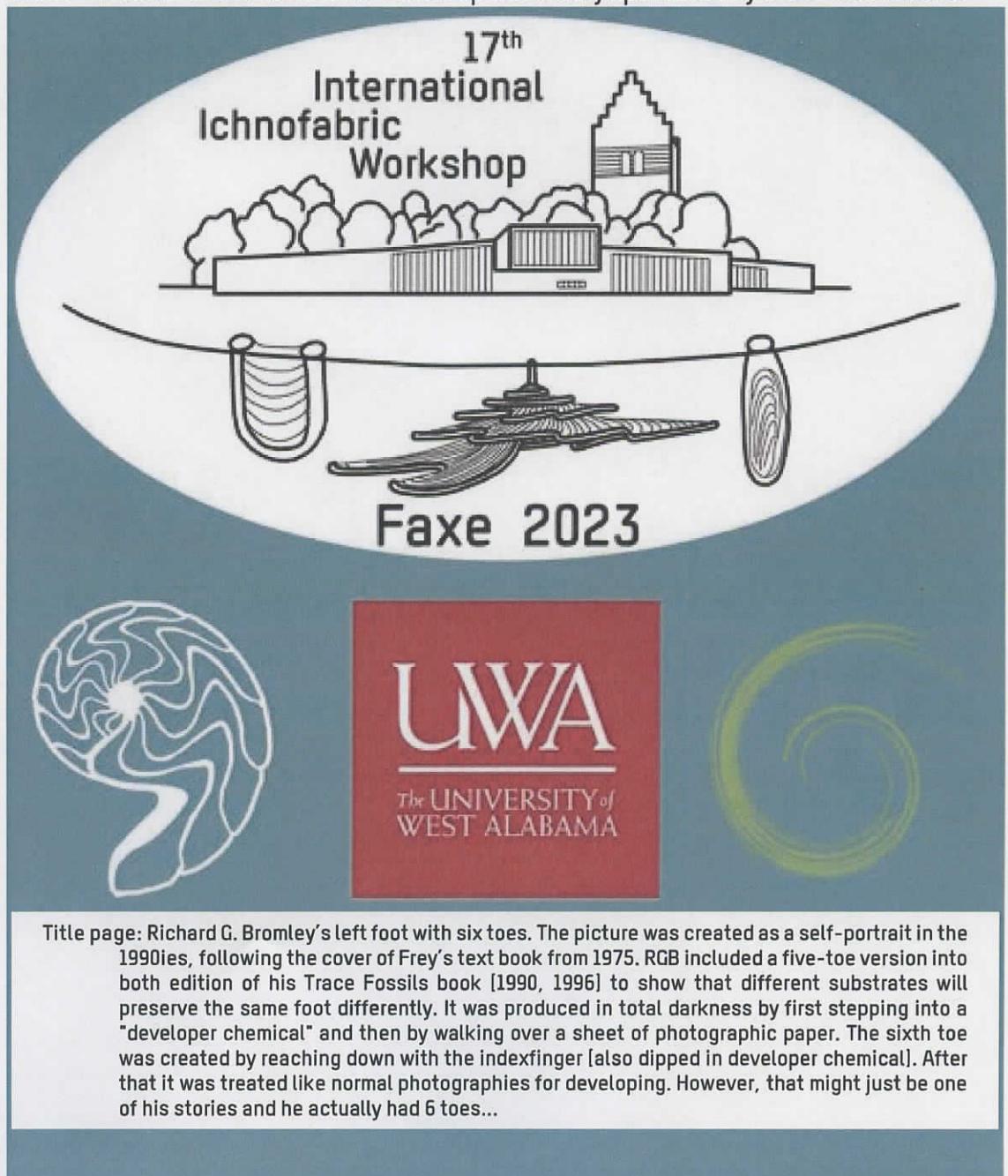
Abstracts and Field Guide

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A *Balanoglossites-Trypanites* ichnofabric from the Upper Ordovician warm-water carbonates of Estonia

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A succession of shallow-marine carbonates characterizes the Middle and Upper Ordovician of Estonia [Baltica]. *Balanoglossites-Trypanites* ichnofabrics are common in highly condensed Darriwilian temperate water sediments but are less abundant in Upper Ordovician warm-water carbonates of the region. An exception comes from middle Katian sediments. The boundary between the Nabala and Vormsi Regional stages [Saunja and Kõrgessaare formations] in northern Estonia is formed by a prominent discontinuity surface, which has been interpreted as a paleo-karst horizon. In the Sutlema Quarry, tropical carbonates of the Saunja and Kõrgessaare formations [middle Katian] are exposed. A flat, slightly wavy, hardground marks the boundary between these formations. The Kõrgessaare Formation consists of interbedded wavy-bedded to nodular argillaceous skeletal wackestone and marl. The upper part of the exposed formation contains a flat double hardground and, at the top, an irregular hardground. All flat hardgrounds in the Sutlema Quarry are bored and show signs of karstification. The bioerosional ichnofauna of the hardgrounds is abundant, consisting of shallow *Trypanites sozialis*, elongate *Trypanites weisei*, winding and undulating *Trypanites* isp., algal bioerosional traces, and fine shallow grooves. In addition, large, subsurface U-shaped tubes of variable diameter occur, similar to *Balanoglossites triadicus* and *Planolites* isp. Epizoans on the hardgrounds comprise a typical marine fauna: cornulitids, crinoids, bryozoans, brachiopods, and tabulate corals. The flat hardgrounds in the Sutlema Quarry formed in a shallow-marine environment and parts of them were likely subaerially exposed briefly.

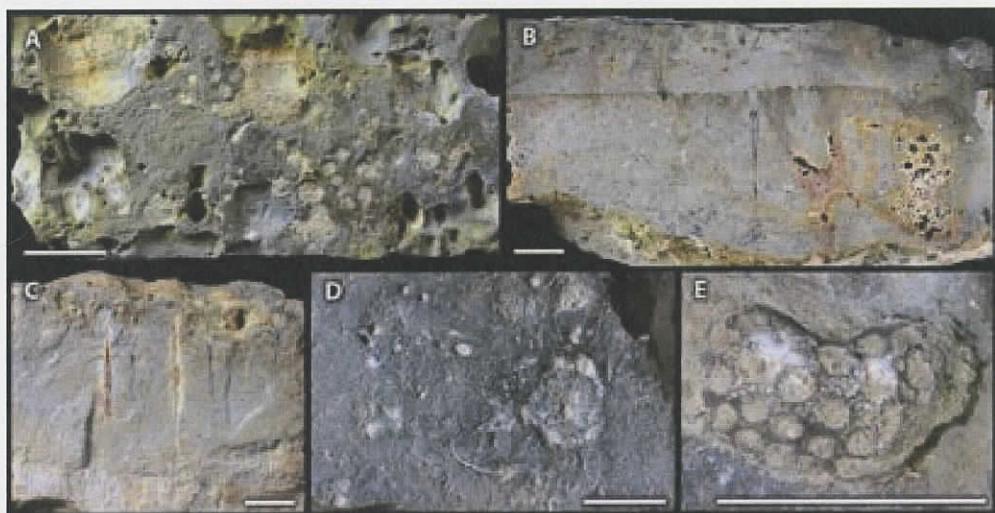


Figure: Middle Katian hardgrounds from the Sutlema quarry, Estonia. All scale bars are 1 cm. A: bored, bioeroded, and karstified hardground, top of the Saunja Formation, GIT 881-9; B: bored double hardground, Kõrgessaare Formation, GIT 362-865; C: *Trypanites weisei*, top of the Saunja Formation, GIT 881-28; D: delicate algal bioerosional traces overprinting *Trypanites* borings, top of the Saunja Formation, GIT 881-35; E: tabulate coral *Propora* encrusting the hardground, top of the Saunja Formation, GIT 881-27-1. GIT – Department of Geology, TalTech.