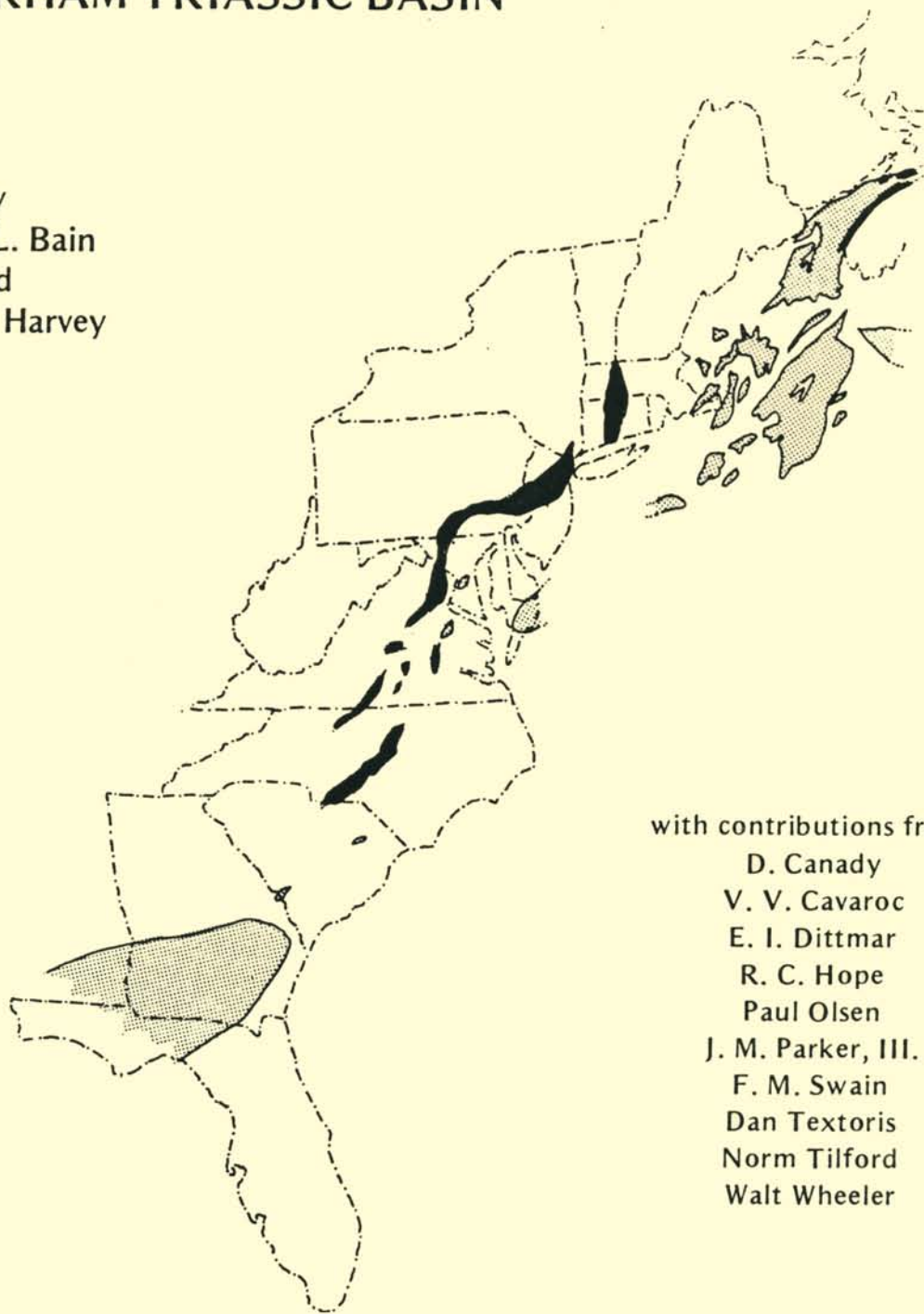


FIELD GUIDE TO THE GEOLOGY OF THE DURHAM TRIASSIC BASIN

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Olsen, P.E., 1977, Stop 1 - Triangle Brick Quarry: In G.L. Bain and B.W. Harvey (eds.), Field Guide to the Geology of the Durham Triassic Basin, Raleigh: Carolina Geological Society. p. 59-60.

STOP 11 - Triangle Brick Quarry

Paul Olsen

The main quarry of the Triangle Brick Co. at Genlee, N. C. exposes 40 m+ of lacustrine and fluvial clastics of the Chatham Group (Newark Supergroup) of Cornet (1977).

This is one of the best exposures of the central basin facies of the Durham basin. The section (fig. 17) consists of two main sediment assemblages. The fluvial facies is made up of massive red siltstones with root casts and drab crossbedded sandstones containing arthropod burrows (Scoyenia) and root and stem casts in growth positions. The lacustrine facies is composed of very well bedded, mottled red-green siltstones with a characteristic fauna (fig. 18).

Reptile bones and teeth are found in association with intra-formational conglomerate and allochthonous wood fragments in the fluvial sandstones. Although isolated elements and small bone assemblages of phytosaurs are the only common reptile remains, Parker (1966) has described the occurrence of a partial skeleton of the armored thecodont ?Stegomus sp. from this locality (fig. 18). The lacustrine siltstones exposed here contain a benthic assemblage made up of ostracodes (Darwinula spp. and D.? spp. from here described by Swain and Brown, 1972), clams (unionids and ?corbiculids), crayfish (?Clytiopsis sp.), and presumed crayfish burrows (Scoyenia) and a pelagic assemblage composed of conchostacans (Cyzicus spp. [=Howellisaura]) and fragmentary fish. The fish genera found so far include the palaeoniscid Turseodus, the subholostean ?Cionichthys, the holostean Semionotus, and the coelacanth Diplurus. The upper lacustrine beds are riddled with fine root casts, and common allochthonous plant fragments (conifers, cycadophytes, and ferns) occur throughout. A single beetle elytron has also been found.

The sequence of bed forms and sedimentary structures in the lacustrine deposits (fig. 17) exposed here are nearly identical to those of sedimentary cycles of the Locketong Formation of the Newark basin; only the color of the beds differ (red and green here, black and grey in the Locketong).

The fish and reptiles from these beds indicate a Late Triassic age correlative with the Locketong Formation of the Newark basin, the middle New Oxford Formation of the Gettysburg basin, and the upper member of the Cow Branch Formation of the Dan River Group of Thayer, 1970. Studies of pollen and spores from the Locketong and New Oxford Formations show them to be Late Carnian (Cornet, 1977). Thus, these lacustrine and fluvial beds of the Durham basin are also Late Carnian and slightly younger than the middle Carnian Cumnock Formation (Cornet, 1977) of the Sanford basin to the south, suggesting correlation with part of the overlying Sanford Formation.

This quarry is located near the southwestern end of the traceable lacustrine horizon. The red-bed facies with which these fossiliferous beds are associated are terminated to the southeast by the Bonsal-Morrisville fault zone and to the southwest by a large 6-mile-long north-trending diabase dike. Stewart and others (1973) estimated seismic depth to Basement at this quarry to be 5600 to 6600 ft. An electrical sounding made 2 miles to the south did not "see" Basement at 6500 ft.

104.2	0.4	<u>TURN LEFT</u> on SR 1945 as you leave quarry.
104.4	0.2	<u>TURN RIGHT</u> on N.C. Highway 55 and return to Apex and Ramada Inn.
115.5	11.1	Ramada Inn.

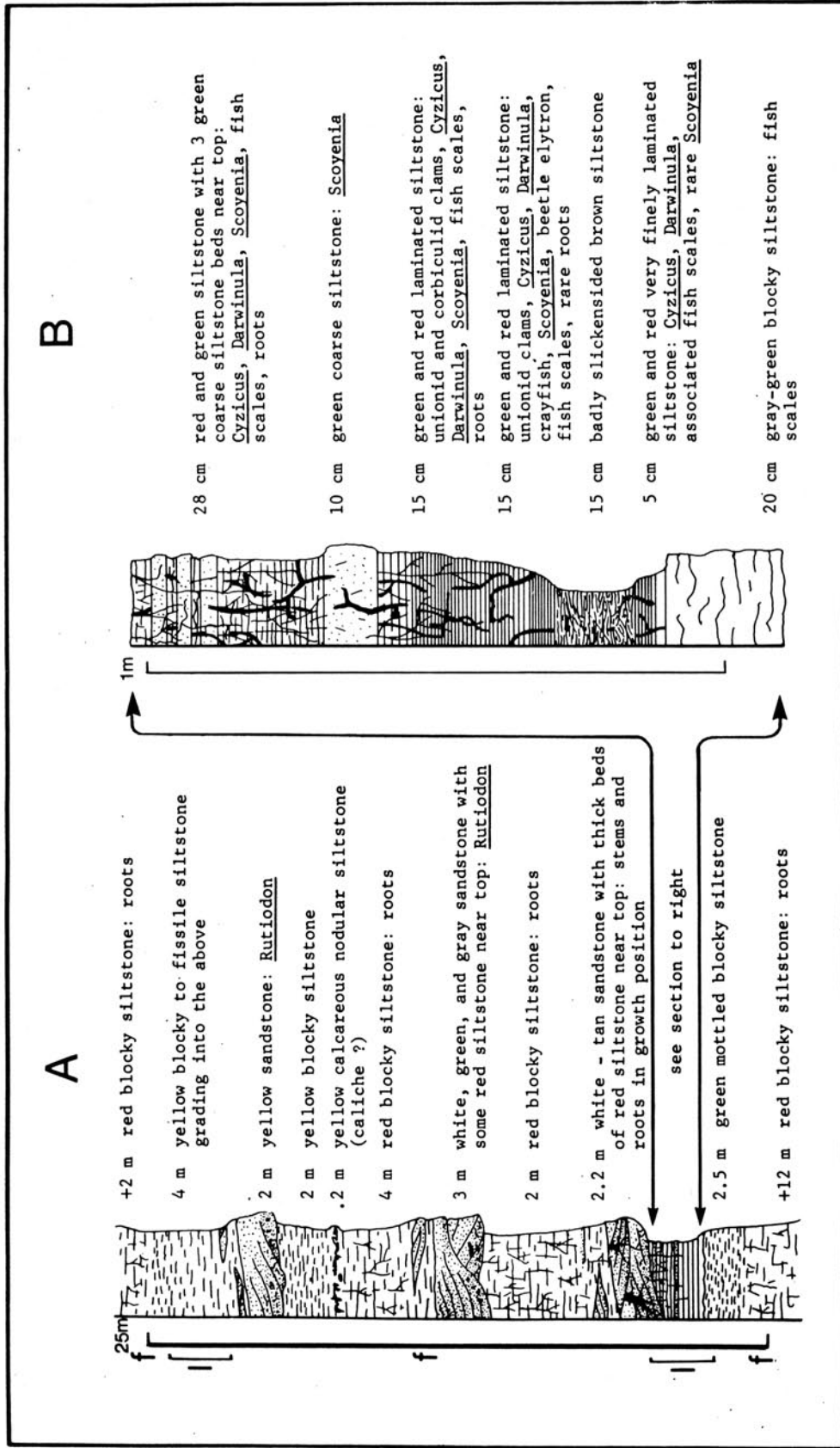


Figure 17. Measured section at the main quarry of the Triangle Brick Co., Genlee, N.C.: A, entire section. The 1 indicates lacustrine facies, while the f indicates fluvial facies; B, detail of the lacustrine beds which produced the fauna in Figure 18. (section and description by P. E. Olsen)

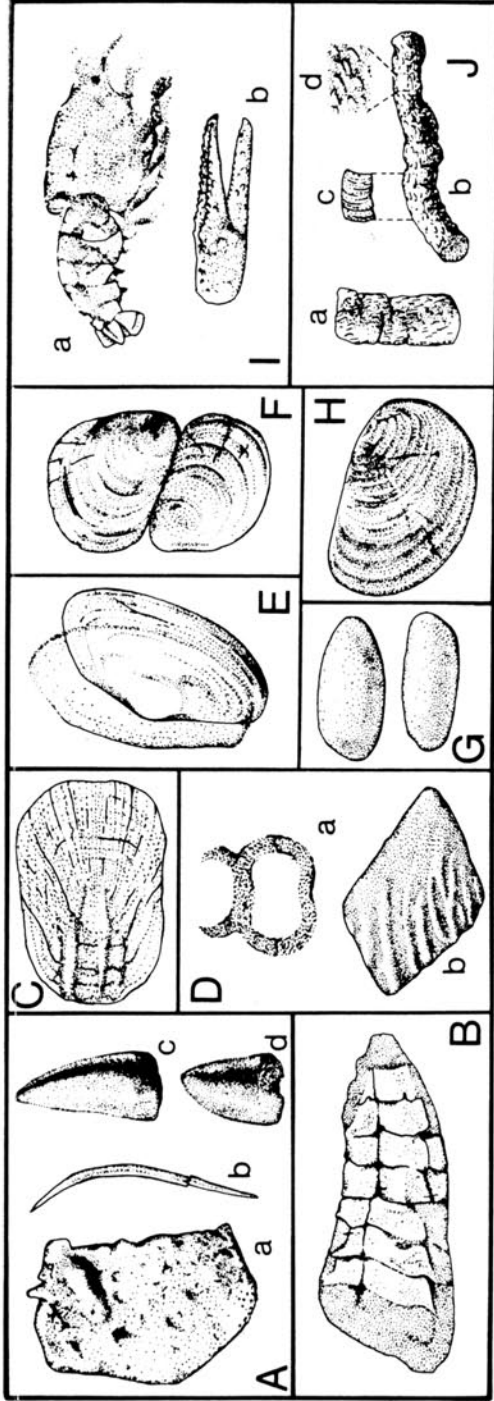


Figure 18. Fossils from the Triangle Brick Co. quarry, Genlee, N.C.: A, bones and teeth of the phytosaur *Rutiodon*, (a) dorsal scute, .13 X, (b) gastralia element, .19 X, (c, d) posterior teeth, 1 X; B, *Stegodus* sp., ventral view of fragment of tail cuirass, .25 X; C, scale of *Diplurus newarki*, 3 X; D, centrum (a) and scale (b) of *Turseodus* sp., 3 X; E, unionid clam, 2.5 X; F, corbiculid clam, 3 X; G, *Darwinula* spp., 20 X; H, *Cyzicus* sp., 5 X; I, crayfish, (a) specimen missing front claws, 1.5 X, (b) isolated front claw, 1.6 X; J, *Scoyenia* type burrows presumably made by crayfish, (a) large vertical burrow, .5 X, (b) horizontal burrow, .5 X, (c) transverse section showing meniscus infilling, (d) enlargement of sculpture on burrow exterior, 2 X. (fossil collection and description by P. E. Olsen)