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Conodonts from the Aplington Formation of Northcentral Iowa

W. I. ANDERSON

Abstract. Conodonts comprising six species have been recovered from the Aplington Formation from five localities in northcentral Iowa. Although the Aplington conodont fauna is meager it suggests a correlation with the Maple Mill Shale of southeastern Iowa. The Aplington Formation is regarded as representing the youngest Devonian formation exposed in northcentral Iowa.

INTRODUCTION

Stainbrook (1950) excluded the upper, dolomitic portion from the Sheffield Formation and established the Aplington Formation for these carbonate beds. He designed the type section as a quarry just north of Aplington in Butler County. Stainbrook, on the basis of a brachiopod fauna, assigned the formation to the lower part of the Kinderhook Series. However, it is known that most of the original type Kinderhook is of Late Devonian Age (see Collinson, 1961).

Stainbrook considered the Aplington brachiopod fauna to be similar to a brachiopod fauna from the Percha Shale of New Mexico. Since Miller and Collinson (1951) reported a goniatite cephalopod from the Percha Shale which is indicative of Upper Devonian, to III-to IV of western Europe it could be argued the Aplington Formation is also of Late Devonian Age.

APLINGTON CONODONT FAUNA

Conodonts have been recovered from the Aplington Formation from five localities (see fig. 1).

Locality 1, Peterson no. 1 core, N. of Vincent, NE $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$, sec. 10, T. 90 N., R. 27 W., Newark Township, Webster County.

Locality 2, East side of Highway 65, SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 10, T. 93 N., R. 20 W., Clinton Township, Franklin County.

Locality 3, East side of Highway 65, opposite Chapin Road,

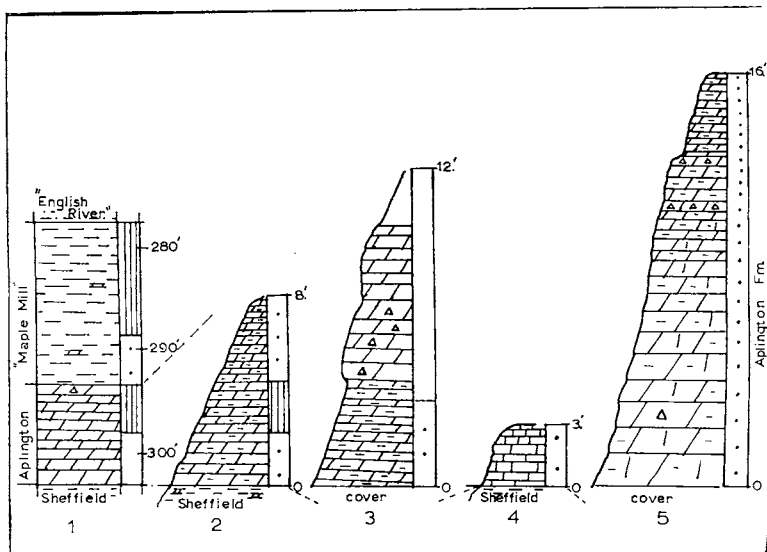


Figure 1. Index map with columnar sections. Sample intervals which were barren are unshaded. Sample intervals with relatively few identifiable conodonts per quart of sample are dotted. Sample intervals with moderate numbers of identifiable conodonts per quart of sample are shown by vertical lines.

SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 27, T. 93 N., R. 20 W., Ross Town-
ship, Franklin County.

Locality 4, Pit, east of Sheffield, SW $\frac{1}{4}$, SE $\frac{1}{4}$ sec. 7, T. 93 N.,
R. 19 W., West Fork Township, Franklin County.

Locality 5, Quarry, north of Aplington, SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 20, T.

90 N., R. 17 W., Monroe Township, Butler County.
(Type locality).

The conodont fauna is meager and includes some species which also occur in the Sheffield and Maple Mill formations (see Table 1). The fauna includes *Icriodus costatus* and *I. constrictus* which have previously been recorded from the upper Maple Mill Shale (Thomas, 1949) and the "Clarks Fork" and Englewood formations (Klapper, 1962). Transitional forms from *I. costatus* to *Pelekysgnathus inclinata* are present in the Aplington Formation. *Pelekysgnathus inclinata* has been reported only from the Maple Mill Shale.

Table 1. List of conodont species from the Aplington Formation

Conodont Species	Number of Specimens
<i>Icriodus constrictus</i>	2
<i>Icriodus costatus</i>	144
<i>Icriodus iowaensis</i>	22
<i>Polygnathus brevilamina</i>	41
<i>Polygnathus communis</i>	57
<i>Polygnathus symmetrica</i>	3

Collinson (1961) reported conodont faunas from the type Maple Mill which indicate a correlation with the Saverton Shale of Illinois. Collinson *et al.* (1962) show the upper Maple Mill as correlative of the *toIV* portion of the Saverton. Klapper (1962) recorded *Icriodus costatus* in association with conodonts diagnostic of *toV*. The presence of *I. costatus* in the Aplington Formation may indicate a correlation with Upper Devonian zones *toIV* or *toV*. *Polygnathus communis* occurs in the Aplington and this species does not appear in strata older than Upper Devonian *toV* in Europe. Although the Aplington conodont fauna is limited, it supports the assignment of the Aplington Formation to the Upper Devonian. A correlation with Upper Devonian Zone *toIV* or *toV* can not definitely be made, although it is probable. The Aplington is considered to be a dolomitic facies of the upper Maple Mill Shale.

Plate 1 illustrates some of the conodonts recovered from the Aplington Formation. One species is illustrated from the "Maple Mill Shale" from locality 1. "Maple Mill Shale" is used here in an informal sense for the shales which overlie the Aplington at locality 1.

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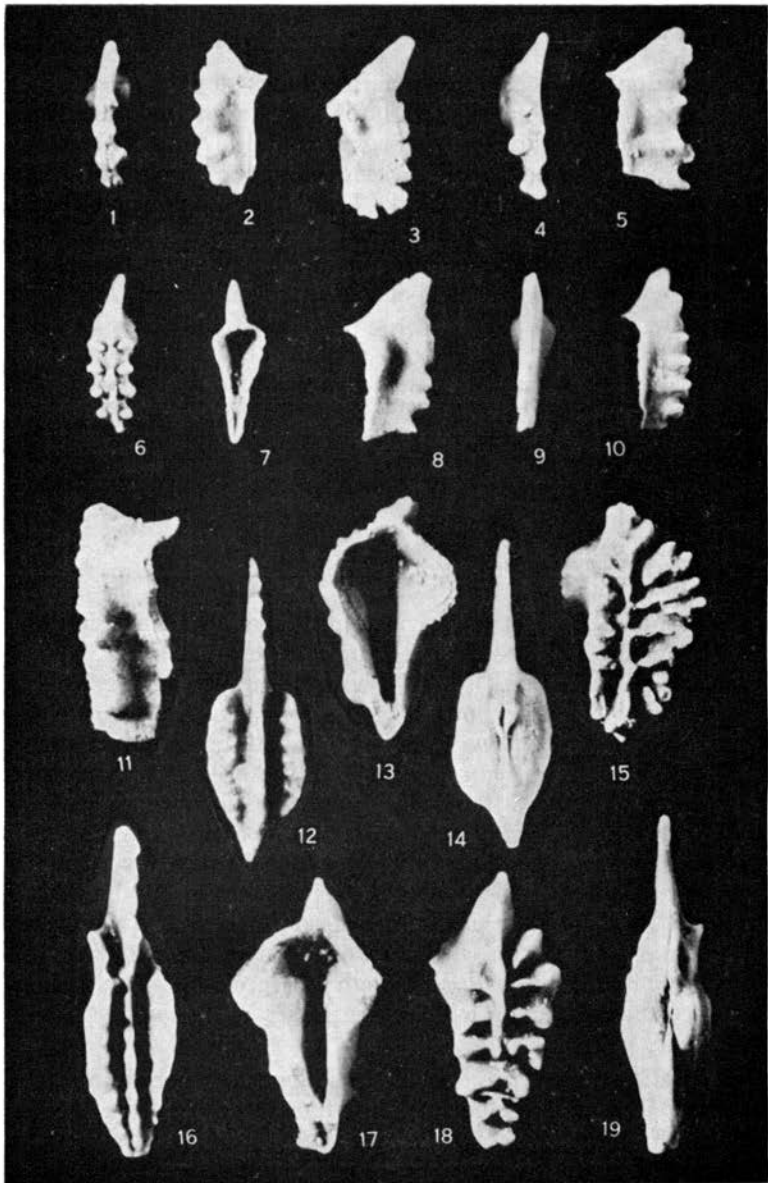


Plate I. Conodonts from the Aplington Formation.

Explanation of Plate I

Figures 3, 7-9 are from the "Maple Mill Shale." All others are from the Aplington Formation. Magnifications approximately 25x.

1, 2, 4, 5 *Icriodus costatus* (Thomas) transitional to *Pelekysgnathus inclinata* Thomas. 1, oral view, 2, lateral view S.U.I. hypotype 11285.

3, 6, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 *I. hypotype* 11286.

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- 3, 7-9 *Pelekysgnathus inclinata* Thomas. 3, lateral view of S.U.I. hypotype 11298. 7, aboral view, 8, lateral view, 9, oral view of S.U.I. hypotype 11297.
- 6, 10 *Icriodus costatus* (Thomas). 6, oral view, 10, lateral view of S.U.I. hypotype 11284.
- 11, 13, 15 *Icriodus constrictus* (Thomas). 11, lateral view, 13, aboral view, 15, oral view of S.U.I. hypotype 11279.
- 12, 14 *Polygnathus communis* Branson & Mehl. 12, oral view, 14, aboral view of S.U.I. hypotype 11330.
- 16, 19 *Polygnathus symmetricus* Branson. 16, oral view, 19, aboral view of S.U.I. hypotype 11355.
- 17, 18 *Icriodus iowaensis* Youngquist & Peterson. 17, aboral view, 18, oral view of S.U.I. hypotype 11292.