

Conodonts from the Upper Devonian East Ogwell Limestone at Ransleigh Quarry, south Devon

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(In the name of God)

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Ransleigh (Ransley, Ramsleigh) Quarry (SX 8443 7018), the type locality of the East Ogwell Limestone (Selwood et al. 1984), is a well-known source of Devonian fossils (Ussher 1913; Scrutton 1977a, 1977b; Selwood et al. 1984) but the exact faunal dating has been uncertain (House et al. 1977). Conodonts were first recorded there by Dineley and Rhodes (1956) and Dr. N. Mouravieff undertook unpublished studies in 1975. The limestone quarry is now degraded and only Upper Devonian ages are presently exposed. New conodont sampling has been undertaken to determine the faunal range (Fig. 1).

Samples from the Ransleigh Quarry section were collected in a SE to NW direction (Samples 1-11). Sample 1 was collected from 0.7m south of an iron ring set in the quarry floor at the south end of the quarry. Other samples were from points which continued NW for 37m to sample 11. Sample 12 was collected from the top of the NW corner of the quarry. Samples 13 and 14 were from the northern side of the quarry (Fig. 1). Distances from sample 1 are given where appropriate in Table 1. Detailed records of the conodont taxa from each sample are given in Table 1.

Between about 50m to the south and 120m to the SW of the quarry, in the Ogwell Road, grey reefal limestones are well exposed in a confined cutting. Twelve samples were collected from the road cutting which were lettered A-L. The samples were collected from both sides of the road depending on the best side

for sampling. The ages of these samples and other details are given in Table 2. Measurements given in Table 2 are distances from the stile leading to the quarry (Fig. 1).

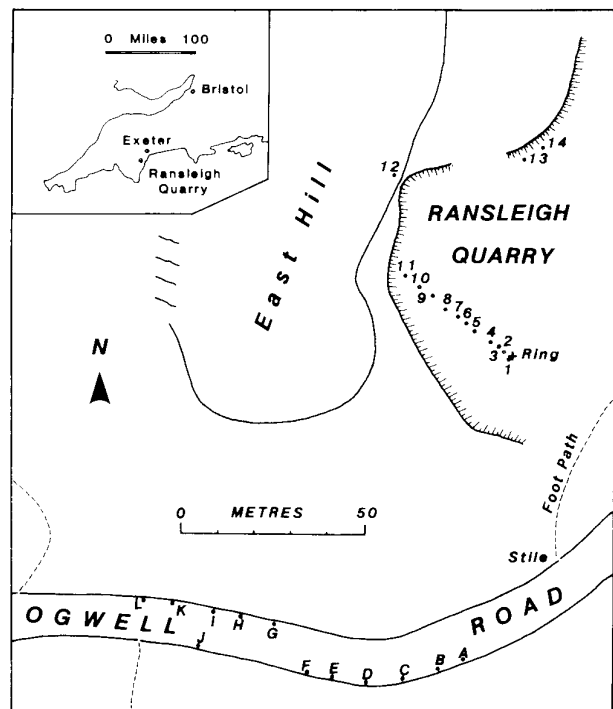


Figure 1. Map illustrating the conodont sampling localities around Ransleigh Quarry, East Ogwell, South Devon.

SAMPLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
LOCATION	0.7	2.5	5.2	7.7	12	16	19.3	23.5	28	33	37	-	-	-	
LITHOLOGY	L	L	M	M	L	L	M	L	L	L	L	L	M	M	
ZONAL RANGE	to	ug	ug	uc	uv	ug	ug	1r	ug	-	ug	-	1t	1m	c/r
	from	1	1	uc	1	1	t		1		ua	r			
Ancyrodella:															
curvata		x			x	x		x		x			x		
gigas		x													
nodosa					aff.			x		x					
Ancyrognathus:															
triangularis		x	x			x	x		x		x				
Palmatolepis:															
circularis				x											
gigas		x	x			cf.	x						cf.		
glabra				x	x										
glabra prima								x						x	
minuta minuta					x			x						x	
minuta wolskea					x			x						x	
quadrantinodosa								x							
quadrantinodosalobata														x	
rhomboidea								x						x	
subrecta		x				x			x		x			x	
termini														x	
Polyanthus:															
rhenanus								x							
timorensis									x						
webbi						x					x			x	
xylus								x							
Polygnathellus:															
brevidento							aff.								
iowaensis		x	x				x	x			x				
sublaevis									x						
typicalis											x				
Ieriodus:															
alternatus		x							x		x	x			
symmetricus			aff.				x	x				x			
Coelocerodontus:															
devonicus		x					x	x							
triangularis		x	x				x	x			x	x			
Apathella:															
ziegleri								x							
Pelekysgnathus:															
primitive														x	

Table 1. Conodont taxa from Ransleigh Quarry samples. Distances from iron ring in metres given below sample number. Abbreviation of lithologies: L=reefal limestone; M = red micrites. Abbreviation of conodont zones: 1= Lower gigas Zone; ug = Upper gigas Zone; uc = Upper crepida Zone; uv = Upper velifer Zone; 1r = Lower rhomboidea Zone; t= Ancyrognathus triangularis Zone; ua = Upper asymmetric Zone; 1t = Lower Palmatolepis triangularis Zone; r= rhomboidea Zone; 1m = lowermost Lower marginifera Zone; c/r = crepida/rhomboidea Zone boundary.

metres given below letters. Abbreviation of lithologies: L = reefal limestone; M = red micrites. Abbreviation of conodont zones: ug = lowermost Upper and/or Upper *gigas* Zone; mg = Uppermost *gigas* Zone; a= *asymmetricus* Zone; t = *Ancyrognathus triangularis* Zone; ut = Upper *Ancyrognathus triangularis* Zone; uc = Upper *crepida* Zone; uv = Upper *velifer* Zone;

SAMPLE	A	B	C	D	E	F	G	H	I	J	K	L
LOCATION	36.5	44.1	5.3.1	62	69.7	76.2	88.32	97.2	104	108	115	122
LITHOLOGY	L	L	L	L	L	L	L	L	M	M	L	L
ZONAL RANGE	to from	ug a	ug t	ug t	ug t	ug t	ug t	ug t	uv uc	-	ug	ud
Ancyrodella:												
curvata		x	x	x	x			x				x
ioides												x
nodosa					x		x					
Ancyrognathus:												
asymmetricus		x			x							x
calvini								x				
triangularis				x	x	x	x	x	x			x
Palmatalepis:												
<i>gigas</i>		x			x				x			x
<i>glabra</i>										x		
cf. <i>hassi</i>								x				
<i>minuta minuta</i>										x		
<i>subrecta</i>		x	x	aff.	x	x	x	x	x			x
sp.												x
Polyanthus:												
<i>ancyrognathoidea webbi</i>		x					x					x
Polygnathellus:												
<i>bicritata</i>		x										
<i>brevidonto</i>		x					x					x
<i>iowaensis</i>						x			x			x
<i>klapperi</i>								x				
<i>reversa</i>		x										
Ieriodus:												
<i>alternatus</i>		x						x				x
<i>symmetricus</i>				x	x	x	x					
Coelocerodontus:												
<i>devonicus</i>					x							
<i>triangularis</i>		x	x			x	x	x				x

ud = Upper Devonian undifferentiated.

Apart from conodonts, other organisms also occur but their numbers are limited. Ostracoda were found in two different samples of the red shaly micrite units from the quarry section (Samples 7 & 13) and although their preservation is poor, at least two genera are distinguishable. One sample (7) contains index ostracods for the Famennian. This sample also displays some cephalopod fragments. Bivalve fragments with clear growth lines and some bryozoans are seen in some samples. Sponge spicules, mostly six-rayed, have been seen. Lastly there are some probable trilobite fragments in one sample (2) from the quarry.

Both the quarry and the road cutting sections display two different facies, grey reefal limestones and red shaly micrites. These two lithologies are easily distinguishable in the field by their different colour and lithology. Generally the grey limestone units yield more abundant well-preserved faunas particularly in the road cutting whereas the red micrite units have a rather poorer yield and preservation. In both sections the abundance and diversity of the conodont fauna changes notably even in two adjacent samples.

Two different ages are represented by the two different facies. The massive grey reefal limestones indicate a Frasnian *gigas* Zone age. The samples from the road cutting show a more restricted range early in the Upper *gigas* Zone. The dated samples from the quarry section include the Lower *gigas* Zone as well. By contrast the red shaly micrites give Famennian ages, all uppermost Upper *crepida* to lowermost Lower *rhomboidea* Zone. In the quarry these lithologies are apparently repeated by tectonic dislocations.

In some areas of the quarry there is clear evidence of karstic weathering of the reefal limestones and subsequent infilling by red micritic sediment. Scrutton (1977a) has described the red micrites as draped over the limestone (see also Scrutton and Goodger 1987, p. 478).

It is suggested that the East Oggwell Limestone was uplifted at some stage in the upper Frasnian later than the early Upper *gigas* Zone. It then became emergent allowing karstic weathering of the surface. Subsequently, in early Famennian times, subsidence led to infilling of the irregular reef surface by marine, red-coloured micrites. This could have occurred by the uppermost Upper *crepida* Zone.

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