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				_	_		_				11	_	-	-			1						-								11		
Borehole number	Seam and depth in barehole	Thickness in cm	Sample Ne	L. guennelli. L. fevil. L. cf. prindyl. L. cf. prindyl.	Punchalisperites of edgarensis P. punctatus	P. obesse P. op. A Refunderlietes co. A.	Calabragora previnaciala. C. ct. brevinaciata C. ch. brevinaciata C. bortungena.	C. cf. faevigate C. mitterugese. C. nebulesa	C. parva. C. parva. C. pedata:	C. of, pedata C. strammes C. sp. A	Adelisporifes multiplicatus Granulatisporifes adhafoldes	G, genulatus G, minutus G, microgramifer	G. patruk	Cyclogravitanian aureus C. Ispatal	C. elmits C. et moutes C. et moutes C. multipress	Aplicative transpora sp. A. A. sp. B.	Convertucesisperites armstus Vertucesisperites denorili	V monthberses V verroceus V sates	V sp. A. Lughorrieres comissuralis	L. cf gibboue L. grandenstus L. cf. mirrosettus	Waltzispons prisco Anapiculatisporites miner	Angianisperites becodus	Pystuarsperites populatura P. pustulatus P. sp. A.	Apcolatrapera abditus A. aculeatus A. eregularis	A, cf infigrantee A, spinnesserous A, spinnesserous	Apiculatosperites spirulistratus A, sp. A	Acontholistes echinalus A. friquetrus	Rastrickia fema R. futva R. locerata	R. pilosa R. szefusa	R, soloria R, sp. A	Spackmanites fazierugasus Convitatisperites sp. A	Microeliculatioparites harrisoni M. nobitis	Seconsportes resous. Dictystrietes bireficulatus. O. castunearfemis. O. fature.
5	High Marine Band at 187° 3"	13-8	A97 A98	R 02			Я	R 96	52 04 16 R		02		R	R R	H 04 02 02					R R	94	68 92	R	R 15	H 02	02	02					- 1	B 02
7	Seam C at 208' 1"	60	A32		R			04 R	05 11 04		2	02	R		R						-	74		122	92				R				
	Top Ashington (D/E1) at 192" 9"	21-3 76-3 8-8	A100	04 F R 06 0 06 R 12		2	0.2	06 04 R	04 13 02 16 10 32 10	16 02	04	H 97 06 06 06		R	R					92 92 92 96	92	15 54		92 15-5 14		R 04	07 04 06		92			R 04	
	Ashington (D/E) at 45° 1"	12-5 12-5 97-5	A78 A79 A80	02 02			02 R		R 26 02 02 15 26 08			94				R				02 04	0.9	159 16-3 70		15 04 19 8 194	8	02		02	8	R B			
	Bottom Ashington (D/E2) at 216" 10"	37.5 28.8	A102 A103	92		2	05	06	22 R 22 06	0.2	02	02 02 04	R	02	9-L 9-2					8 02		24 02	R	19-4 4-2	92 8		92 94		02			R R	02
2	High Main (E) at 97° 10"	85	A59 A60	R R			03	04	09 04 06		R 02	05 03 03	R		02 R			. 8		02 03		11 05		254 70	R 06	R 02	07	R 02	02				
	High Main (E) at 80" 11"	52-5 27-5	ARE	R 07			02	02 02 R	02 06 06 06 10 02	16	R	02			R 06 R					04 02	04	53 83		100 46			0.6 0.2 0.2						
	High Main (E) at 270"7"	42.5 45 6-3	A105 A106 A107	04 R	2 8		04 02	02 R			R R	H 02 08			R 16					04 02 02		5 8 39 35	a	19-6 204 20	R		02 02 13				R		
	High Main (E) at 445" 7"	77-5 10-6 20	A33	07 03	12	R		02 02	06 02 04 03 06 07	02		02 07 01 01			R H	R		02	R	02 09 09 R 04	02	21 02 43		723 77 46			04 02					8	R
	Top Main (F1) at 111' 8"	32.5	A86	02 02 02 02	R	R			14 04 05 06 04 04			02 02		R	02 05 02 84					02 02	02	61 58 190	A	R 87 DA			02 02 R	92 R	R				
	Main (F) at 206' 7"	230 10 20	A6 AT	02 02 02				02	02 30 04 05 05	8	# 07	R 02 03 02				R				R	0.2	26		24 72 09			04	0.2					11
7	Main (F) at 527" 4"		A36 A39	R 04					09 07 02 22 04 04 07 05	0.9 04 R	0.9	02 02 04 02 02 08 04			09 02 R				P	02 02	97 92	24 02 13		140 76 R 04 139 78	02		07 02 02 04	R	02			R	07 R
	Bottom Main T.(. (F2.1) at 123 " 6"	2.5 65 13-8	A89 A90 A91	R 11	2 8	R R	92	04 R	02 59 26 02 25 05 04 13	2-0 07 02		07 15 13 11 09 02 02 02		02 R	04 R 06	02 04	R		A	R 13 04 R 02	R 26	65 54	R R	02 94 R 112 R 30		02	09 07 05 04	92	8 8		R	R R	20 02
5	Bottom Main T.I. (F21) at 296" 8"	79-9	A92 A108	02	2		02		02 09 04		02	94 94			07	02		0.6	*	02 02		18		07 54 152	02 02	96.)	10		02				
	Bottom Main B.L (F22) at 150' 5"	42.5	A63	02					03													13		64.			0-5						
-	Top Yard (G1) at 596° 7"	11-9	A41	R 07 08	R			11 2	07		0-2	04		07	R					02		04		96			02	02			+		
2	Yard (6) at 235'10"	12-5 18-8 71-3 6-3		12 1	R		56	04 H	98 94 98 10 10 92 97 95			09 05 02 04 04 02	R R		R 04 10 02 02 02 07					05	07	-		31 50 160 23	92. 1	02	03 02 02	92			П	R	R OZ
7	Bottom Yard T.L. (G23) at 606° 10"	53-8 10 73-8 30 18-8 10 27-5	AL3 ALL AL5 AL6 AL7 AL8 AL9	02 R 02 R 12 6 02	04	R	92	08 92 92 R H 06 92	04 21 08 06 08 04 15 06 02 04 04 06 04 06	15 R 04 19 11 02	0.2	08 97 08 04 14 86 04 02 06 04	R R	02 R	06 02 II R	R		06	R R R R		06	04 19 46 06 22		250 64 62 174 303 25 R 48 R 161	R	94 02 R	06 02 06 17 04 02	02	R	R		02	92 02 02 02
0	Bottom Yard B.L (622) at 220° 0"	10 26 10	A17 A38 A19	0	12			R R	03 05 R 11 R 19 11 05	R 02 04	RR	02 02 02 02 02 05		R	02 R R 07 11	R			R	R R R	0.2	05	R	140 61 R 25	04	R	04	02					
12	Top Maudlin (Ht) at 328' 3"	58.8	A68:			. 8			14 12	12				R						0.2	02	60		27.2				0.2					
3	Top Maudlin (H1) at 231' 11"	525		R			0-2		02 15 04				R									124		301		02	02						
-	Top Maudlin (H1) at 107° 7°	3-8 46-3	A26	02				R R	04 04 08		R	07 02			- 01					R	08	63		365 192	R		02	02				0	R 02
*	Bottom Maudlin T.I. (Hz.s) at 134" 9"	2.5 55	A27 A28				03	07 R R		R 08	H .			R	01					R	0.2	94. 08		R 195	R 03	05	02 02	R	R	8.			
-	Bottom Maudlin B.I. (H2.2) at 142" 0"	10	A29 A30	02 04			06		04 06 02	0.6	02	18 24 02		02	02 R 10 H				R	R 02	06	36 18		02 113 R 28			14	02	0.2	R			
	Top Brass Thill (K1) at 491' 4"	125 125	A70 A71 A72	R 04 02 0	2		04	02. 02	02 37 04 02 09 02 04	06		04 07 19 02 11 09 06 11 15	0	94 94	R 01 02 10 02			92 02	R		16			96 21			02 05 05 04 08 21		R	R	R		07
6	Top Brass Thill (K1) at 413' 3"	425	A20 A21				02	B 09	22 03	R 05	02	20 20 16 02 07 05	B:	R	02 04			04	P	R 03	14	16		R 224	R 02	05	03 05	9.2					13 05 R
2	Bottom Brass Thill T.I.(Kz.1 at 500' 6"	1 525 75	A75	04 06 0 04 02 01	2		02 R		02 05 25 07 17 04	17 R	04	08 94 99 04 96 19 02 36 86		02	04 00				R	R 13 R 06 02	R 13 94	92		R 49 R 06 M0 30	RR	04	02 06	02					01
3	Bottom Brass Thill TL(Kz.1)			02 R I	RRR			02 02 R		04 04 H	R 02	01 95 E 01 31		02 11		H	R	R			R 42		R R 06	23 ts R 108	06 R R	R		R 02	R 02		R	6	01 R 41 02 R
	at 377' 9" Bottom Brass Thill IL(Kz.1)	1 925	A96	04	R		02 R	. 06	92 19 25 14	R 92		05 03 16			04 R					02	04	56	9	01 17	04 F		02 04		R 02	R			22
	at 249° 9" Bottom Brass Thill TL(Kz : at 592° 8"	, 713	A109 A110 A111	02 02 R 02			02 04 0			0-6		04 08 02 12 10 04 12 22		0-2	04 02					04 06 06 04	04	103 43 41		222	04 R 02 R		02 02	06	02				12
6	Bottom Brass Thill TL(Kz.1 at 439° 6"	3	A22 A23 A24	R 03	R	R	92	R R	92 14 04 92 25 93 96 32 96 95 12 95	96 11	H 02	02 16 30 06 11 14 02 06 20	R.		0.5 H 04	R		02 02	R R	02	96 32	17 38 36	A	322 R 176	R	03	06 05	B 03	я	R	R.	9	0 0 3 0 5 R
2	Bottom Brass Thill BL(K2.2 at 506" 6"	35	ATT	02					07 09 02		1	02								92		05		19-6			0.2						

Table 1 Miospore distributions in Northumberl

ficroreficulatisparites harrisonii 4. nabilis	Secarisporites remotus	Dictyetritates arreticularus C. castaneaeformis n. extane	D. muricatus O. reticuladingulum	Camptotriletes bucculentus	C. sp. A	Ahremsispordes guerickei Triouitrites pretensus	T. tribultatus	T. sp. A. fantillus, friquetrus	Reinschospora speciasa	R. triangularis Knexisperites trinadiatus	Reficulatisporites polygonalis a reticulative	Savifrisperites nox	Grunosisporites pupillosus G. variereticulatus	Diaphanespera parvigracita 0. sp. A	0.10.8	Crassispera annulata	C. kosankei Sinazantriletes intertus	Densosperifes enulates	D. sphaerofriengularis Lycospera erbicula	L. petulia	L. rugasa	Cristatisperites connexus C. Indignabundus	Circatrinagites satumi	Radizonales alridres 2 tenuis	Spencer isparites radiatus	Endosporites glabiformis E. staplinii	L. zonaus Schulzospora rana	S. Cf. rara Alabsparites haffmeisterii	A purticipation to the contraction of the contracti	L. ninor L. striatus	L. volganis Punctutosparites minutus	Vestisgera cestatu	V. Iuminatu	V. tertuess	Fabraparites politicus	F. mediapudens	F, miliath F, punicolos	f. similar	F, visenbas	Wilsonhes of delicatus Paleospora fragilia	Potoniesponites elegans P. so. A	Pityosparites westpholensis	Schopfipolienites elliptolities	Schopfigelantes eleptones vor Certaines Spore type A
	R				R			я												8 28 455			R			1.9				08	21	R	R	R R	0.8	R NL R	02 R					02		RRR
	R	2		R											ď		28	R	1 3	3 24 566 9 37 386		02	R			0.2				51	54	6 R	3	04. R	04	R	02	ş	-				-	R
				R							R	R					187 156	R	44	6 28 509 8 14 402	04 16		02 06 0	6		07 06			R	50 26	06 56		2	02	12 0	B R	R R 0-2	R	R			02	H	
R 04				-		+				+	-	R			+		251 6-6		44	4 14 374 0 09 52 7 13 519	22 07		06 R 06		Н	04	R		R	9-5 4-0 7-3		3 5 8 02 8 7 15 8		02 02 R 08	13	RR	02 04 02		R 06			П		
R R						-				-	R	R			R	_	42 12 0	1-0	02 5	1 21 387	06		R 02 0	4		04	R	-		32	92 41	6		0-8	06 0	16	P 02 02	R	94			R	+	R
п. п.	0	12		-		+		+		+	R				- 1		11.7	02	3	4 62 551 2 35 414	09		02 01			02	R	-		11-9	92 31		-	02 02	06 0	6 02	02 R R 02		R			R		
	H			-		+				+					-		112		23	4 37 516 1 7 413	0 22		02		Н	07	R	+		37 63 38	03 71 02 84 02 24	RR		06 02			02 04		0.2		R	04		
		_		H		†	-			t	R						7-4 12-0 14-2	0-2	2	2 81 501 1 5 06 324 1 8 54 35	6 41		R 00			04			R	58 23		RF	(04 04 02				R R	06		R
	R			-		+				+		R			R		12-6	19	50	2 77 435 0 6 24 29	06 06		02 R		Н	19	+	-	R		02 47 52	1		04		4 11	04 R 02			R	R	R		R R
												8					8-2 12-6		35	2 24 664 5 30 568	25		R			02 R				35 34	02 29 02 41		1	04 0-2 R							R	H	1	1
												R		R	R		7-7 2-9 0-8		91	5 123 421 6 214 444 1 8 125 445 1	1 14		0.6			02				14	01	5			02 1	R	R							R
	1	4.			K	1		K			0:	2		02	1		13-1	3	15 2	8 0-6 573 7 78 60-0	17 44		0-9 R	R		02 I 06			R		06 01	0		R 06	. 3	02								R
	2					-	02					R		R			76		02 25	2 07 65 5 33 365 5	3 18		R 69	0			2	1	R	0-3 10 11:5	02 16 07 33	6		R 02 02 R	04		R R R		R		R	Ħ		-
R	0	17 R	R	R	R	RR					01	2					115 143 94		2 30	9 28 476 6 0 30 494 6 0 105 483	6 04		R 01	R		02 04 02	R	1	R		51	04 04 R		14 R			02 R				R		0	02
R	2	0 0	2 02 R		R	02 0: R	2 04 1	R	R 1	R R		R			8			15 1	9 04	4 11 231 1 6 10 395	0 11	02 R -	07 17	-15			2	R	7	17-0 7-2	28 24	D R R	- 4	06 06	04 0	9 11	R 02	R	R	R	2	02		,
						R					R	R		R			17	02 0		2 202 47	09 21		RR			30 (2			26 45	02 65	8		0.2	13 24		0.2							+
					R	8									-		10-1	04 0		9 45 419		R 02	04 04		Н	06	-	-		53	21	R)Z	14	02	02 02					R	R	8
				-		+			_	+		Н			+	-	0.6	-	25	2 173 417 2	4 90					02	-	-		06	06		R		02									1
	R O			R		R	-	R			0.0	2		R	R		54		12 35	5 42 602 5 5 130 393 7 88 538 1	126		02 02 R	01		06 03 10				64 57 12	02 48 02 33 06 08	R	1			2 R	R R		R				R	T
R	3	20	2 13	-			04		R		R	H			RE		43 26 28 R		34	7 88 538 1 3 65 401 2 17 297 0	32		06 R	0:	02				R	11	21 26	04 R	0	R R	09 0		R 04 02			R	R R	+	+	+
02		2	. 12			R	94								R	100	12-8 9-8	RO	12 21	1 35 392 0 6 36 393 0	6 47	R	04 10 R	01		13			R	91.	02 25	06 R		R R 07			04 02	R	R		R	П		R
											R			R	n	R			11	9 74 779	10		04			02 I			RRR	21		R			04 8		0.2							
	R			R		1					RRR	Н			8		0-6 2-0 1-5	02 1	0 18	6 73 703 (8 04 644 (3 20 724	2 02		02 04 R 02			04	-	-	Н	35 R	03 08			R	04 0	2						H	+	R
			R									0.2		07			0.4	1	31	2 20 812 0 60 504 (0-6		0.7			02				1·5 3·0	04 117	19		12	0		R 02 R					R	02 R	1
											R 04						6.8	2-1 0	16 12	12 421 0	4 94	02 02	04	R		0	2			46	04 14	02 R	-		-							H	+	+
			R	R		-				R	02	2		R	1	-	22			9 15 639		92 R	R 04		H	05 1	-	-		63	02 22	02 R		12	1/1		02		R			H	+	
	R 0	2	R :	R		+					R R	H		-	RR		55	R 1	195	5 25 400 3 54 615 0	08		0.2 0.3 0.2 R 0.3	- 8	Н	0.7		-		36		R R		2 R			10	R	R	R		H		-
	+				-	+		+		Н	R R	H		02			13	0-8	104	0 62 460 2	5 11		R 03		R	03 J			R	33 R 42 142	02 57 02 71		-		13 38	02 R	64					R		1
	01	7	R			02 R	0.5					02	B		RR		06 05 02 3-0	14 0	9 10	24 308 0 1 143 371 0	4 10	R	02 02			09 50			R	124 R	07 19	02					R 05 02			R	RR		R	T
	19		К	R	4	RR	04	H			R R	0.2	-	R	- 1		08		1-7	11 269 2	6 53		07 02			02 R 0	2	+		21	20 20 16 29			02	30	04	02 04	02	1	R		R		R
	01	5 R	07		-	+	-			H	R	R		R	R		10-9 02	02	08	33 42 2 8 221 300 2	3 23		RR			08		-		49	16 29 51 06 17			R	1.5 0	6	06	R R			R	H	*	1
	1					RR					0:1	R			R	1	36 11-8	29 0	0 161	19 272 0 3 26 353 0 3 36 464 0	6 15	R	02 04			0-6 F R 03				67	02 81		0	2 R		2 02		R						A
		1 02 R	R	R	R		02	R	R F	R	0-2 R R R			R	RR	R	0-5 2-0 R 0-4	31 0	2 06	28 339 1 68 592 1	7 11		04 04 02	R	R	02 04 F			R	196 R	17 04 02 36	1			06 0 25	2				R	R		RR	1
	2	2	R	R	R	01	01		R		R R				RR	R	21 01	18 0	5 22	16 345 1	1 17		R 01			07 R F			R	11-6	0-9 1-3	R		R	08 F	1		R		R	R			F
	10	2	02		4	02										1	31	24 1	227	7 47 459 0	0 17		02 04			04 02				50	08 04 2:3 26				04	04		02				0-6 R		
	R 0			R	R	RRRRR	0-3				R		R		R		04 13	05	23	0 13 LOL 7 8 20 27-2 1 9 08 389 1	1 20	R	03 03	R		06 39 1 05 R F	1			8-9	0.6 12 1-1 06	R	.0	12 R	0	8 R		R						T
	0	5	R		R	" "	4.3				R		R	R			29	1	0 171	1 16 402 0	9 16	100	02			RRI					24					5 R	0.2	R				4	R 0	12

Succession		Thickness in cm	Sample N Miospores	L. guennetit L. favis	L. cf. priddyl L. sphaerstrangulus	Punctatisparites of edgaransis P numerature	P. obesits	P. sp. A. Refusofrilates, sp. A.	Calamospora breviradiata. C. cf. breviradiata	C. Nortungiana C. ef. Idevigate	C. micrarugasa	C. pullida	C. petatra C. petatra	C. of pedata C. straninas	CupA	Aperingovins multiplicatus Granulatispovites adhabades	G. grandstux G. mirutus	G. microgramifer G. pattidus	G. parvus. Cyclogranisporties gureus.	C. Ispoldi C. minuta.	C. of minutes	Apiculintusigens sp. A. A. sp. 8	Convertucosisporties areadus	Vertucousporites denorii V. micrefuberosus	V. verucoius V. situri	V sp. A. Lophstriletes commissuralis	L. ef. glabous L. grancornatus	L. cf. nkrasaeteus. Maltziesen erisco.	Anapiculatisperites miner Anabirisperites baccatus	A 10 A Districtions of the confidence	P. pustulatus P. so A	Apiculatisperis abditus	A. stregularis	A. spinososobbaus	A provident sporities spirities of a en A	Aconthotriletes echinatus A triposetrus	Raistrickia firma B. fulva	R. lacerata R. pilous	R. saetusa R. solaria	R. sp. A. Spackmanthes, facteruposus	Convolutisparites sp. A. Microreticulatisparites harrisonii	M. nabilis Secorisporifies remotus	Dictyotrilates bireticulatus D. castoneasforms	O falsus O muricatus	O refliculationgalum Camphofrifetes buculantus Camphofrietes	C sp. A	Ahrensispecties goarickei
Ryhope Marine Band Coal	N H H	26	A138								R	RR	16	00	2			R											0.	2			453							1	R	R	R				
Unknown seam	2	28	A139									R	04 04	01	a			R				5						02	13	3	R		70	R R	04								100				
Unknown seam		1000	ASLO						92	0	2 06	2	39 06	04	4	R			98		02 1				0.2				04 01				20	02	02												
Seam C	E		A141		12 02						96		25 06	91	2			92				6							16	7			167 0	92 R	02									R			
Unknown seam Seam Dt			A142		R		R		02			R 02	20 04					04			0					R			02 04			1	165			0				8							
Seam Dz	8-	Sec. 1	A143 A144		02 H 02 02						92	R	96	11		*					R F				02				02 5:			R	215		R			R		Я							
High Main E	h		A113	R 02	94 H		8		THE.	8	2 04		38 05 04 02	01	1		02 04					*					e R		95 95			0	165 0	14		0					R	04		R			
Main F	R-<		A112	05	0.5				02					02 01	,	R	05		1		RR					R	-		0				112			02 0	2 8 0	2		13			11	2		K	0
	e -																																		-												
Top Maudlin Hr	9.	145	A116.	R			R				02		36 04	0	2	R 02	02	09	R					R	04 R	02			13 4	0		R	139	02:		02 0	5 R 0	2 8	02				R	02	R		
Btm. Maudlin Hz	/		AT19 AT18					R	02		02	R	04 04 32 08	0	2 8	R 02	04	04	R								02	02	02 0				197 (02 02	04			2	0.2			R			2		1
Distribution 18	1		ATI7						04		04	R 02	54 06			R 02	02 10				02 0		Н				92		02 11				35	04	0.2	02	0	2						R	R	-	
	2																																														
Btm. Low Main Jz	2-	200 N	A121 A120		02 02	R			02			02	32 R	04	6		02 02 02 08				0			8			06		20 3		F	8	176 0	12 02	02		0	2	02				06	R R			
Top Brass Thill Ki	8	0.00 N	A122	К	02 02				0.2			R	44 13	2		R		21	R		0				0.7		13	92	08 9	20				P4 02	ж	96		2 8	R				04	R	R		
Bhm.Brass Thill K21		23	A123					R	0-2		02	R	10			R	92	08		R	02 0		П				R 02	02	5	5			294	02	R		.0	2									
Bhn Brass Thill Kzz		16	A124										25 06	.01	6	RR		0.2			-0	6 R					R 02	R	190	3			63 (02 02													4
Btm. Huttom Lz	8-		A125 A127		R 02				02 04 02	RR	50000	R 02	24 06 28 02	2:	6 0 A		. 04		R		R 1	2 F			R		R		06 9				R 164 R 103 (R 04 02	R 04		06		02				02	09			
Plessey M	9		A126										1-5		4			0.2			0						02		04 10				197 (R				02					R	R		
																			1																												1
	8-	10	A129	02	R	,	R				04	g.	44 04	R 1	6		98	12	92	z R	16 8					R	R 04		06 3				30-8	0-4	2		1		8				04	Я	R		
Harvey N	8.	87	A128			R			0.2	R		R	24 04	R 14	0		04	10.	R	R			R		02 R	R	R	R	16 1			R	126 (02 02	04		0	2	R				10	R	R		A
Unknown seam		28					R		0.2		R			R 0	9		02		R		0	9	R		0.2				17 0			R	61		R		R 0	2	06 R				92				A
Unknown seam		16	- / / / /								1	9-2						06									R		06 1					R 04	R		١.		02				92		R		A
Unknown seam	9.	43			Я				06		E		13 04		•	1		0.9									02 R		04 3				250		R				0.2				15	09			
Top Busty Qt		32	A133		0.2								16 04		9				8		02 0	2	04	R	0.2		02 04	1	56 0	6			27-1				0	2	RR			R		10	. 8		A
	9-	2	A 135						0:2		02	0.7	18	04			04	10 R	2		-	0	2				04 04		02 6	,		R	436	0.7		02						P					9
Bfm Busty Q2			A134						3		1200		20 02					04	0			2 02	9				RR		2 8				80		RI		1								R		
																																										*					
Threequarter R	-	1000	A137		4.0			120	12		02		0-4					04						R					08 14				20-0		1		R	1	8				02	02			
	8-	12	A136		02			R				RR	9.7			11		R	1		0	2 R					R		02 24	9			21	02											R		

Table 2 Miospore distributions in Northumberland off-shore boreholes

orehole C. corrugatus C. sp. A Ahrensisporites guerickel Triquitrites professus 2 20 T. tribullatus S T. sp. A ND Tantillus triquetrus 20 20 Reinschospera speciosa R. triangularis and Reticulatisporites polygonalis R reticulatus EL₂ Savifrisporites nux 30 30 30 9 30 30 30 30 30 2 2 2 Grumosisporites popillosus 30 30 30 G. varioreticulatus Diaphanospera parvigracila D. sp. A D. sp. B 20 20 20 20 20 20 20 Hymenospora multirugosa 20 20 20 20 Crassispora annulata 33 7 85 84 132 16 85 84 222 2 2 2 2 2 2 2 8 5 29 33 39 39 33 C. kosankei 2 Simozonfriletes intortus n 2 2 7 0 00 70 4 10 02 06 R 2 2 9 30 S 20 30 11.0 D. sphaerotriangularis 02 02 30 8 9 92 20 20 20 20 20 20 20 20 20 22 2 2 2 2 2 7 7 7 00 38 79 25 55 86 219 Lycospora orbicula 2 2 20 24 24 24 5-5 279 177 179 179 0-6 6-5 2 2 2 2 52 25 95 36 51 74 L. pellucida 350 525 F # F # F # F F 325 895 50 55 373 30 SE 52 L. pusilla 07 08 08 96 12 10 0 0 0 0 7 7 2 2 2 3 S L. refunda 0 0 0 0 0 74 8 95 L. rugosa n 02 n 1 7 12 Cristatisporites connexus 20 20 20 C. indignatundus R 02 R 9 08 09 02 9 02 08 2 m 2 I Cirratrinadites saturni 2 22 92 5 4 92 B S 20 SE 02 02 19-0 2 20 Radiizonates striatus R. tenuis 2 30 30 9 2 22 30 Spencerisporites radiatus R 0 0 2 0 2 2 20 0 02 02 03 12 Endosporites globiformis E. staplinii E. zonalis B 92 92 96 92 P 22 P B 20 20 20 CC CC CC 20 20 20 20 Schulzespera rara 20 20 S. cf. rana Alatisporites hoffmeisterii A. pustulatus 20 20 20 20 20 20 55 90 33 53 73 73 38 5 3 2 3 5 5 56 20 w L. minor L. strictus 2 3 8 L. vulgaris 04 06 02 2 2 3 22 2 2 Punctatosparites minutus 34 17 18 18 5 7 2 7 7 7 4 47 7 7 7 盂 20 20 20 20 2 Vestispora costata V. Laevigata V. tuminata V. pseudoreticulata 20 20 00 R 02 R 02 7 70 9 70 9 n 2 8 8 2 7 92 R V. for tuosa 9 24 17 18 2 2 2 3 5 1 27 8 04 02 22 2 20 9 n 02 02 F. mediapudens 9 2 22 0 0 02 02 04 R F. millotti F. pumicosus B 2 2 10 0 XI 02 F. similis F. triletus n 2 n xo F, visendus 20 20 Wilsonites of delicatus 30 Paleospora fragila Potonieisporites elegans 30 30 30 30 P. sp. A 02 02 0 0 E 02 20 2 Pityosporites westphalensis R 02 Schopfipollenites ellipsoides Schopfipolienites ellipsoides van corporeus 30 20 20 20 20 Spore type A 30 30 30 20 20 20 Spore type B 20 30

Westphalian A	We	Westphalian B	Heerlen classification
Communis	Modiolaris	Lower Similis-pulchra	Non-marine bivalves zones
RA		NJ	Miospore zones *
-	Па	Пь	Present assemblages
Harvey N unnamed seam unnamed seam unnamed seam These and the seam Three quarter R	B Main F T Yard G T Maudlin H B Low Main J T Brass Thill K B Hutton L Plessey M	M M M Ryhope Marine Band unnamed seam. M M M Hytton Marine Band unnamed seam Kirkbys Marine Band Seam C unnamed seam D1 D2 H M M High Main Marine Band T Ashington D/E High Main E	Miospore Taxa Generalised succession (Vertical scale 1:2500)
			Radiizonates striatus Potonie isporites elegans Paleospora fragila Schulzospora rara Schulzospora cf. rara
			Dictyonnieres brieflandrus Apicularbasportes sp. A Triquitrites sp. A Reinschospara speciosa
			Cingulizonates loricatus Grumosisporites papillosus
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Vestispora pseudoreticulata Grumosisporites varioreticulatus
			Crassispora annulata Cristatisporites indianabunduns
			Punctatisporites of edgarensis Verrucosisporites sp. A
			stric
			Endosparites globiformis Laevigatosporites dunkardensis
			Pustulatisporites sp. A Acanthotriletes triquetrus Raistrickia sn A
			Comptotriletes sp. A Triquitrites tribullatus
	t		Tantillus triquetrus Reinschospora triangularis
			Knoxisporites triradiatus Diaphanospora sp. A Dirahanospora sn. B
			enuis staplir offme
		t 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Vestispora laevigata Wilsonites cf. delicatus
			Vestispora luminata Mirrorativulatismorite harrisonii
			Apiculiretusisporas sp. 8 Anaplanisporites sp. A

^{*}Clayton et al 1977

Fig.5.1 Ranges of selected taxa arranged in order of appearance

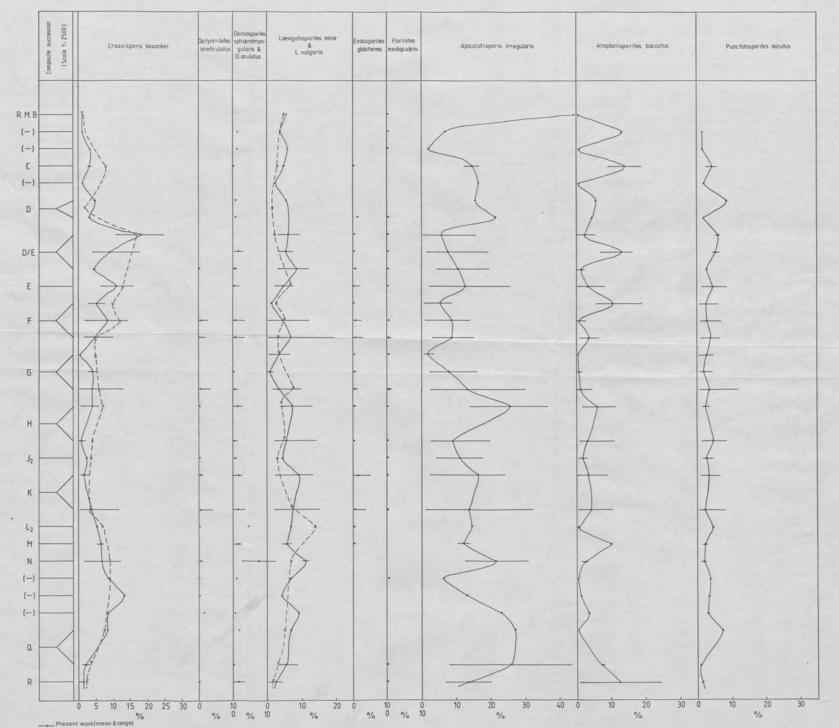


Fig-6-1 Distributions of common taxa in Northumberland off-shore boreholes